THE DETERMINANTS OF CAPITAL STRUCTURE OF REAL ESTATE COMPANIES: EVIDENCE FROM CHINA

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ABSTRAK

Secara keseluruhannya pasaran hartanah global terus menarik perhatian daripada institusi, pengurus dana dan pelabur swasta. Justeru itu, hartanah telah secara rasmi diiktiraf sebagai satu salah satu aset, ia menerima reputasi yang kukuh sebagai sumber relatif pulangan yang lebih stabil, hasil yang lebih tinggi dan aliran tunai yang kukuh. Penyelidikan telah membuktikan bahawa pilihan struktur modal adalah berbeza dengan ketara di kalangan industri. Industri hartanah adalah eksklusif dalam pelbagai industri dari segi pemilihan struktur modal. Ini adalah salah satu hasil daripada syarikat hartanah mempunyai keselamatan yang lebih tinggi (aset hartanah) untuk menangani jumlah hutang yang lebih besar, dan biasanya mempunyai nisbah tahap hutang yang lebih tinggi. Oleh itu, kajian ini adalah penting kerana ia meningkatkan kefahaman penentu struktur modal di syarikat hartanah di China. Kajian ini mengkaji penentu struktur modal syarikat-syarikat hartanah di China, yang disenaraikan di Bursa Saham Shanghai dan Bursa Saham Shenzen dari tahun 2005 hingga 2012. Sampel akhir terdiri daripada 70 dengan sejumlah 561 pemerhatian.

Hasil kajian jelas mengesahkan bahawa apa yang telah ditemui dalam kajian lain, namun dalam skop yang berbeza. Hasil kajian menunjukkan bahawa faktor yang paling kuat dalam mempengaruhi keputusan tahap hutang dalam model adalah pelepasan cukai selain hutang , keuntungan, ketara dan saiz syarikat. Dapatan kajian menunjukkan bahawa pelepasan cukai selain hutang mempunyai hubungan positf dengan jumlah hutang bagi REC di China. Keuntungan adalah signifikan negatif dengan tahap hutang dalam kedua-dua model dan selaras dengan teori pecking order. Hubungan positif antara ketara dan tahap hutnag memberi sokongan kepada teori keseimbangan yang menramalkan bahawa aset ketara bertindak sebagai cagaran dan memberi keselamatan kepada pemiutang sekiranya berlaku masalah kewangan. Saiz syarikat REC adalah positif dan signifikan untuk mengawal tahp hutang, syarikat yang lebih besar boleh meminjam pada kadar yang lebih menggalakkan kerana mereka dilhat sebegai kurang risiko

Kata Kunci: Struktur modal , krisis kewangan global , tahap hutang , REIT , China

ABSTRACT

Ultimately global property markets continue to receive an increasing degree of interest from institutions, fund managers, and private investors. With real estate having formally been acknowledged as an asset class, it is receiving a strong reputation as a relative source of more stable returns, higher yields and steady cash flows. Research has proved that capital structure selections differs significantly across industries. Property industry is exclusive in diverse industries in terms of capital structure selection. This as a result of property firms have more security (real estate assets) to deal with larger amounts of debt, and usually have higher leverage ratios. Therefore, this study is important as it develops the understanding of capital structure determinants in Chinese real estate companies (REC). This study examines capital structure determinants of real estate companies in China, listed on the Shanghai Stock Exchange and Shenzhen Stock Exchange from the year 2005 until 2012. The final sample consists of 70 with a total of 561 observations.

The findings clearly confirm for what has been found in other studies but in different scope. The result shows that the most powerful factor in affecting LEVERAGE decisions in the model is non-debt tax shields, profitability, tangibility and size of the companies. The result shows that non-debt tax shields is positively related to total debt for Chinese REC. Profitability is negatively significant to leverage in both models and in line with the pecking order theory. The positive relationship between tangibility and leverage gives support to the trade-off theory which postulates that tangible assets act as collateral and provide security to lenders in the event of financial distress. The size of REC companies is positively and significantly control for leverage, bigger firms can borrow at more favourable rates because they are perceived as less risky.

Keywords: Capital structure, leverage, RECs, China

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

The relationship between firm value and capital structure has been the most debated and unsettled issue in the field of corporate finance literature on both theories and empirical researches in the past 50 years. Though company's financing behaviour can influence the firm value, factors that determine the capital structure are also an important issue to be addressed in today's corporate environment due to the importance of capital structure. The concept of capital structure can be seen as the way corporates finances their investment activities, which is either in form of equity or debt or the mix of both equity and debt (Kerrigan, 2014). While debt and equity may likely be different in nature, but they match together as company's financing. The essential point is to make the best financing choice or pattern that suit the business organization and will maximise shareholders wealth. Management of corporation play a crucial role in selecting the debt to equity in order to maximize firm value. A wrong choice made by the management of the company in their capital structure mixed may lead to financial distress and lastly to bankruptcy (Feng et al., 2007).

Modigliani and Miller's irrelevancy propositions argued that firm's financing policy is irrelevant under a restrictive set of conditions in the world of perfect capital markets. They revealed that determinants of capital structure do not affect firm value. Nevertheless, in reality, perfect markets do not exist, and it is inexperienced to sum up that financing and investment decisions are unrelated. A number of theories have been

successively been established with the relaxation of the assumptions of Modigliani and Miller's (1958) theory.

Previous researchers have documented the concerns in most studies on capital structure are in developed and industrialized countries (see Antoniou et al. 2008; Brown & Riddiough 2003; Dong 2012; Kester 1986; Morri & Beretta 2008 and Myers 1977) like in the UK and in the US that have many institutional similarities than from data from developing and less developed economies that have different institutional structures. This therefore raises the issue of the validity of the conclusions from theoretical and empirical research carried out in developed and industrialized economies for emerging markets like China.

Research has proved that capital structure selections differs significantly across industries (Feng et al., 2007). Property industry is exclusive in diverse industries in terms of capital structure selection. This as a result of property firms have more security (real estate assets) to deal with larger amounts of debt, and usually have higher leverage ratios. Moreover, real estate firms have more fund raising networks such as Real Estate Companies (REC) compared with other companies in other industries (Singh, 2002). Specified with these exclusive features of real estate financing choices, more attention should made in researching on the financing structure of property companies.

China's property market is consider to be unique as compare with that of developed countries like the UK, USA, France, Germany among others. This is because the Chinese government have a significant role in playing as market regulators as well as being the property firm's owner by state-owned shares (players as well in the industry). Moreover, the imperfect and less transparent regulatory system for China's property and capital market induces unequal treatment between state-owned companies and non-state-

owned companies in many aspects. These include policy support from the government and financial support from state-owned banks (Chiu and Lewis, 2006).

The objective of this research is to analyze the determinants of capital structure of Chinese REC. With the purpose of figuring out the answer, this study adopts multiple linear regression models to do empirical tests. And the tested sample in this paper consists of 70 real estate companies which are picked out from the listed companies in Chinese stock markets (including both Shanghai Stock Exchange and Shenzhen Stock Exchange). The results of running such regression models will be useful to explain how these explanatory variables related with capital structure and how much they can change the capital structure with every 1% increase of themselves.

Table 1.1

List of real estate companies in China used in the study

S/N	Companies	Stock Market
1	METRO LAND	Shanghai
2	SHANDONG TYAN HOME	Shanghai
3	GZH.PER.RVR.IND.DEV.	Shanghai
4	P2P FINL.INFO.SER.	Shanghai
5	CHINA ENTERPRISE	Shanghai
6	CHINA MERCHANTS PR.DEV.	Shenzhen
7	CINDA REAL ESTATE	Shanghai
8	BEIJING ELECTRONIC ZONE INV.& DEV.	Shanghai
9	DONGGUAN WINNERWAY INDL. ZONE	Shenzhen
10	ZHONGTIAN URBAN DEV.GP.	Shenzhen
11	JINYUAN CEMENT	Shenzhen
12	LANDER SPORTS DEV.	Shenzhen
13	WEDGE INDUSTRIAL	Shenzhen
14	TIANJIN GUANGYU DEV.	Shenzhen
15	HAINAN PEARL RVR.HDG.	Shenzhen
16	ZHONGRUN RES.INV.	Shenzhen
17	INGENIOUS ENE CARBON NEW MATERIALS	Shenzhen
18	CHONGQING YUKAIFA	Shenzhen
19	RONGAN PROPERTY	Shenzhen
20	XIAMEN INSIGHT INV.	Shenzhen
21	LVJING HOLDING	Shenzhen
22	WINOWNER GP.	Shanghai
23	TANDE	Shanghai
24	SHAI.CHENGTOU HLDG.	Shanghai
25	SHANGHAI ZHONGJI INV. HOLDING	Shanghai
26	SHAI.NEW HUANG PU RLST.	Shanghai
27	SHANGHAI JINQIAO EXPT. PROC.ZONE DEV.	Shanghai
28	SHANGHAI WANYE ENTS.	Shanghai
29	SHANGHAI FENGHWA GP.	Shanghai
30	SHANXI GUOXIN ENERGY	Shanghai
31	SHANGHAI TIANCHEN	Shanghai
32	SHAI.JIABAO IND.& COM. (GP.)	Shanghai
33	XIAMEN DAZHOU XINGYE RES.HDG.	Shanghai
34	GREENLAND HOLDINGS	Shanghai
35	BAOAN HONGJI RLST.GP.	Shenzhen

36	SHENZHEN CENTRALCON INV. HLDG.	Shenzhen
37	AVIC REAL ESTATE HOLDING	Shenzhen
38	OCEANWIDE HOLDINGS	Shenzhen
39	CHINA UNION HDG.	Shenzhen
40	COFCO PROPERTY (GP.)	Shenzhen
41	SZ SEZ RLST.& PROPS. (GP.)	Shenzhen
42	SHAHE INDUSTRY	Shenzhen
43	SHENZHEN PROPS.& RES. DEV.	Shenzhen
44	CHINA BAOAN GP.	Shenzhen
45	SHN.ZHENYE (GROUP)	Shenzhen
46	SHN.FOUNTAIN	Shenzhen
47	CHINA VANKE	Shenzhen
48	HAINAN HAIDE IND.	Shenzhen
49	SHAI.LJZ.FN&T.ZONE DEV.	Shanghai
50	SHAI.TONGJI SCTC.INDL.	Shanghai
51	TIANJIN REALITY DEV.	Shanghai
52	NANJING CHIXIA DEV.	Shanghai
53	ZHONGCHANG MARINE	Shanghai
54	BLACK PEONY (GP.)	Shanghai
55	BEIJING CAPITAL DEV.	Shanghai
56	GUANGZHOU DONGHUA	Shanghai
57	GEMDALE	Shanghai
58	HUBEI WUCHANGYU	Shanghai
59	BEIJING VANTONE RLST.	Shanghai
60	BEIJING CAPITAL LAND	Shenzhen
61	SHENYANG PUB.UTL.HDG.	Shenzhen
62	LUSHANG PROPERTY	Shanghai
63	TIANJIN SONGJIANG	Shanghai
64	TIANJIN TIANBAO INFR.	Shenzhen
65	GUANGHUI ENERGY	Shanghai
66	ZHONGHONG HOLDING	Shenzhen
67	BEIJING HOMYEAR RLST.	Shanghai
68	HUAFA INDUSTRIAL ZHUHAI	Shanghai
69	GUANGDONG SHIRONGZHAOYE	Shenzhen
70	YIHUA HEALTHCARE	Shenzhen

1.2 Overview of Listed Real Estate Companies around the World

Ultimately global property markets continue to receive an increasing degree of interest from institutions, fund managers, and private investors (Kerrigan, 2014). With real estate having formally been acknowledged as an asset class, it is receiving a strong reputation as a relative source of more stable returns, higher yields and steady cash flows (Clayton & Mackinnon, 2003). Recently, the total global listed real estate market comprises over 3,000 companies with a total equity market capitalization of USD 3.0 trillion and ownership of USD 5.1 trillion in commercial real estate (Kerrigan, 2014). The investable marketplace i.e. companies in excess of USD 150 million in market capitalization to be approximately 1,200 companies with a market capitalization of USD 2.5 trillion. Nonetheless, success requires proper risk assessment as a result of the tough lessons learned in the past decade and the continued volatility of global economies (Glascock et al. 2000). Therefore giving consideration to this matter would help the retrieval towards more sustainable economic conditions and to avoid similar financial shocks in the future and make the real estate more stable.

The US listed property sector has delivered over 20 percent returns so far in 2014 (Kerrigan, 2014). Real estate fundamentals stay unchanged and the initial outlook for 2015 appears to be positive across most major property types. Comprising in value the equivalent to anywhere from 10–90 percent of a country's GDP, commercial real estate is a appropriately large asset class both in global accounting for about USD 27 trillion and in the US USD 7.1 trillion to warrant consideration within a diversified investment portfolio (NAREIT Annual report, 2014).

Figure 1.1: US real estate companies equity market capitalization growth (NAREIT Annual report, 2014).

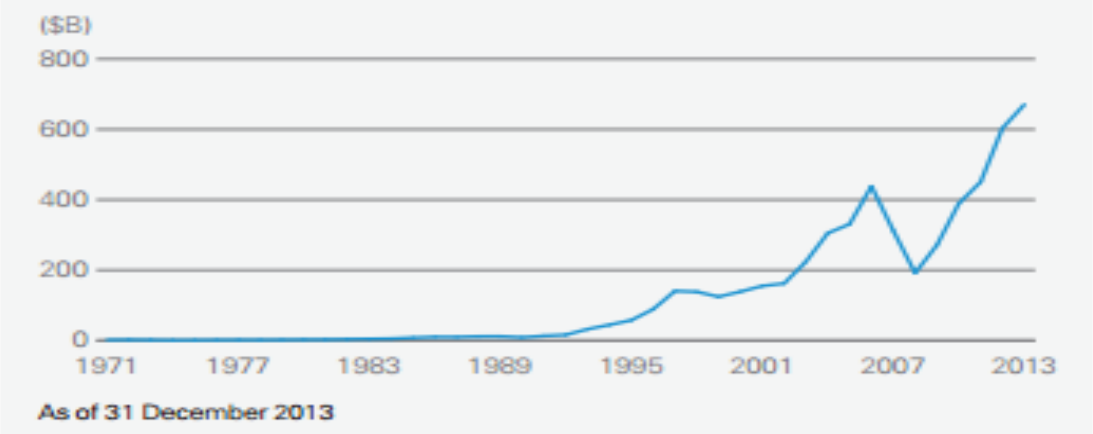
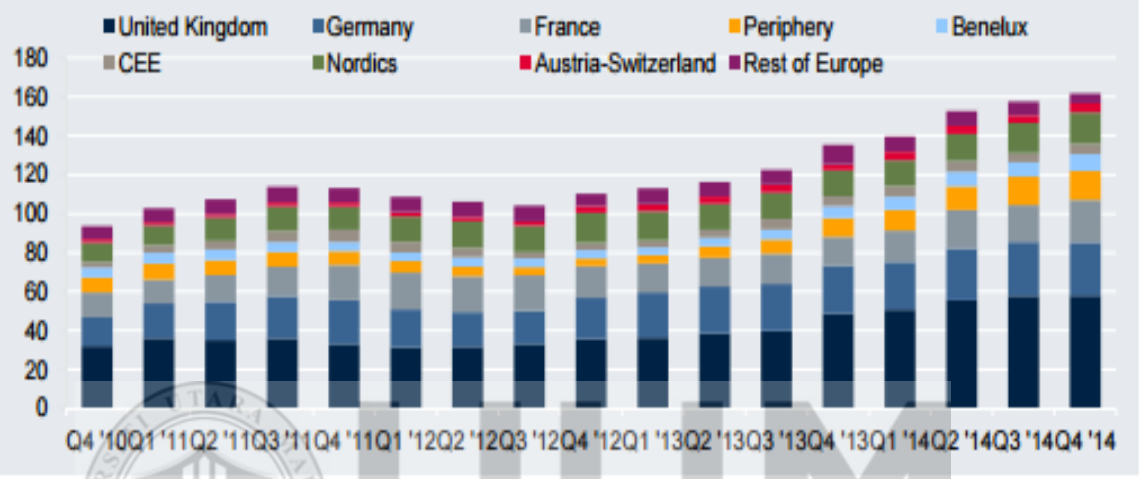


Figure 1.1 shows the growth real estate listed company market capitalizations which further ascertained the importance of the sector towards economic development due to the much needed liquidity for investors. Furthermore, even when considering the substantial price correction witnessed from the latter half of 2007 through the end of 2009 during the global financial crisis, the long-term performance of commercial real estate has demonstrated strong total return performance, stability of income returns, and low correlations to other investments (Benjamin et al. 2001).

Europe remains in the early stages of economic recovery and annual GDP growth has strengthened substantially compared to previous years. There remains an expectation that the recovery will gradually strengthen, leading to jobs growth and higher demand for real estate (PwC, 2015). European real estate investment continues to increase steadily as transaction volumes topped €160 billion last year, up more than 12 percent on 2013. The United Kingdom still represents the most active market attracting almost over a third of all European transactions with the U.K. regions increasing their

share to 50 percent of total transaction volumes last year, up from 40 percent a year in 2014 as indicated in figure 1.2 (Robert et al. 2015).

Figure 1.2: Commercial Real Estate Investment Volume (Rolling Annual Total, € Billion) (Robert et al. 2015).



Europe's real estate industry expects to be busier and more profitable in upcoming years. This optimism is clear, despite weak fundamentals and economic conditions as well as an undercurrent of concern about the geopolitical situation in parts of the world (Deloitte, 2015). One of the key drivers of this optimistic growth is increases in real estate valuations, which have led to significant rises in the value of portfolios held by fund managers. Private real estate funds saw an average increase in net asset value for 17 straight quarters to June 2014. Certainly, this has led to improvements in performance, with real estate funds generating annualized returns of 16.7 percent over the past three years and 93 percent of institutional investors feeling fund performance has met or exceeded expectations (Moylan, 2015).

1.2.1 Overview of Listed Real Estate Companies in China

In 2009, benefiting from high liquidity and favourable policies, speculative demand and repressed residential demand increased from 2008 (GRESB Report, 2013). China's real estate market increased strongly in 2009, with housing sales areas and sales values increasing significantly from 2008. According to data from the National Bureau of Statistics, during 2009, total sold gross floor area (GFA) of commercial buildings totalled 947.6 million square meters, up by 43.6% from 2008 (GRESB Report, 2013). Additionally, average housing prices increased by 25.3% during 2009 due to strong demand. Stimulated by increased sold GFA and average housing prices, in 2009, the total real estate sales value was $649.4 billion, exceeding the peak level of 2007 and increasing by 80% from 2008. In the first quarter of 2010, China's average housing prices continued to increase rapidly by 10.6% from the end of 2009 (Luyi, 2012). To curb the rapidly increasing housing prices and prevent financial risks, the State Council issued a series of adjustment measures to limit housing demand, increase effective housing supplies and intensify market regulation. As of May, under the strict government adjustments, housing trading volumes in China's major cities had declined sharply and housing prices in some cities fell (Tian & Gallagher, 2015).

Despite the strict and intensive macro-control policies, China's real estate market still developed rapidly. Average housing prices and sales volume of commercial houses were estimated to have increased by 11.1% and 8.6%, respectively, for the whole year, contributing to an increase of 20.6% in total real estate sales value in China (Luyi, 2012). Benefitting from the large increase in contract sales value during 2009, the settled revenue of many real estate developers increased rapidly in 2010, which was estimated

to promote rapid industry revenue growth for the year. During 2011, stricter macro-control policies, such as a limit on house purchases, have been put forward and interest rates have increased twice to curb the rising housing prices in China. The growth rate of housing sales value in 2011 may slow down (Tian & Gallagher, 2015).

However, with sufficient funds, real estate developers are not expected to reduce housing prices significantly. As a large amount of sales value that was realized in 2010 will be settled as operating revenue, industry revenue is expected to increase at a rate of 20%. This is still rapid growth, but much slower than growth in 2010. Over the five years through 2011, industry revenue is expected to expand at an average annualized rate of 27.9% to reach $869.1 billion (Tian & Gallagher, 2015). The next five years will see slower growth of 16.1% per annum, totaling $1.83 trillion by 2016. There are forecast to be over 96,500 developers operating in the industry in 2011, with around 492,000 establishments. The total number of employees is expected to total 2.55 million, with total wages of $29.23 billion. Total assets in the industry are estimated at $3.72 trillion in 2011 (Tian & Gallagher, 2015).

By 2015, real estate in China accounted for roughly 15 percent of gross domestic product—not counting the significant indirect effect on GDP through other sectors such as banking and construction. This is reflected in the fact that real estate investment has provided a compounded rate of return of 10.1 percent a year over the past decade as shown in figure 1.3. From 2000 to 2014, returns on property investments have been attractive for Chinese residents because of the limited investment options available in the less-developed Chinese financial Markets (Tian & Gallagher, 2015).

Figure 1.3: Performance of real estate sector as compare to stock market and bank deposit

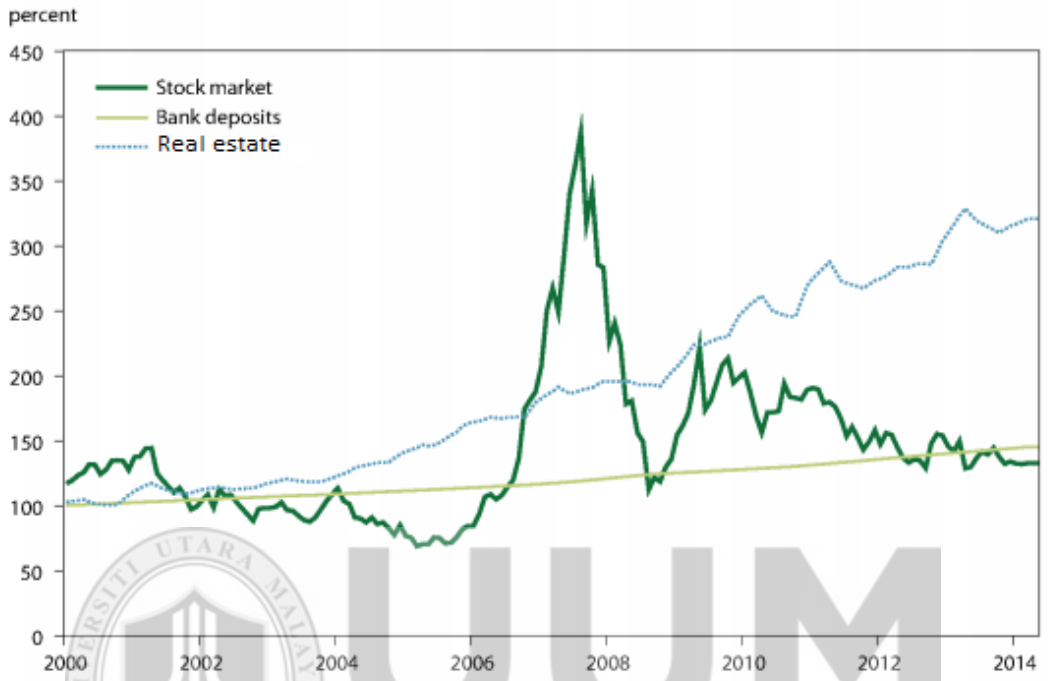
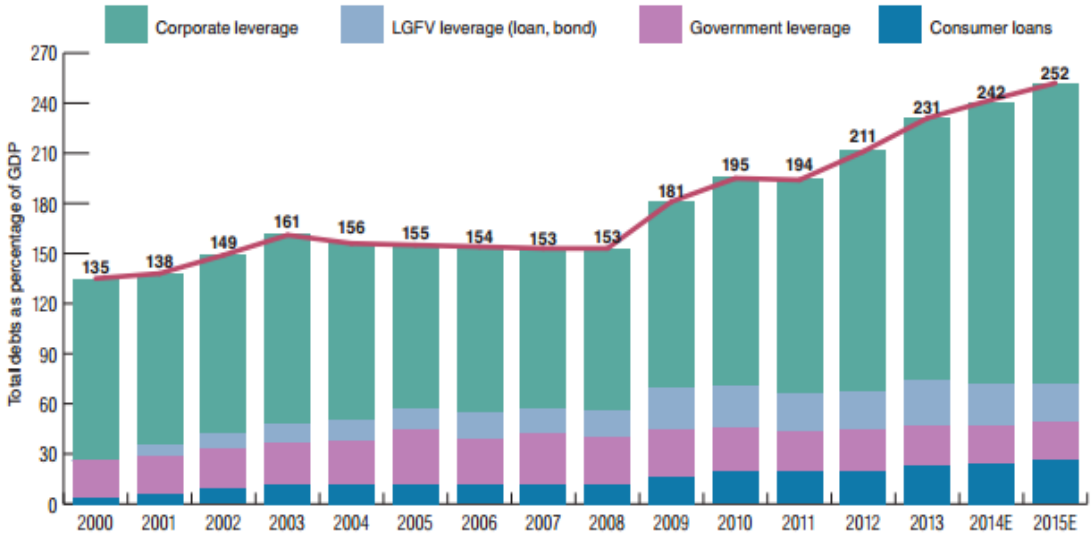


Figure 1.4 shows how leverage among corporation in China has rapidly increased since 2008. The real estate sector has been in a cyclical period of decline, with the yearly growth rate of floor space sold at 7.6 percentage points below that in 2013 (KPMG, 2015). However, there were no dramatic real estate market crashes and the real estate prices remained fairly high, with prices relative to income levels being higher than in some developed countries such as the US and UK, mainly because of the government's stimulus policies (PwC, 2015). Average nationwide house price has remained high at about 22 times average annual disposable income in 2013 though the ratio has declined from its peak in 2010 (Chivakul et al., 2015).

Figure 1.4: Outstanding debt as a percentage of GDP by type of debt (PwC, 2015)



In line with the above matter, it is evident that there is an obvious need to intensify research on how capital structure effects on real estate firm value in China where little research has so far been done.

1.3 Problem statement

Capital structure is intensely evaluated when defining how risky it is to invest in a business, and consequently, how expensive the financing would be. Especially, capital providers look at the comparative weighting of different types of financing used to fund that company's operations. However, what determines the capital structure of the firm have been broadly researched in the corporate finance literature, since the capital structure plays a key important role to the development of property/real estate firms (Ariff et al., 2008; Bhamra et al., 2008; Campello et al., 2010). Thus, a study in this area should be carried out in order to understand the matter, especially in the China context.

Numerous studies examined the relationship between capital structure and its firm value in both developing and developed countries and the results from one country may not represent to other countries due to difference in economy conditions.

China real estate companies (REC) have increasingly relied on investment to drive growth. To finance such rapid investment growth, the Chinese firms have borrowed from both banks and other non-financial institutions (Chvakul & Raphael, 2015). China's economy has grown at an incredible rate of about 10 percent per year. China surpassed Japan to become the world's second largest economy after the United States. Real estate is a significant part and has been a key engine of China's rapid growth in the past decade. Real estate investment grew rapidly from about 4 percent contribution to GDP in 1997 to 15 percent contribution to GDP in 2014 (Chivakul et al. (2015). Residential investment, in particular, has been high compared with that in other countries. Statistics currently shows it accounts for both about 15 percent of fixed asset investment and 15 percent of total urban employment. Bank lending to the sector accounts 20 percent of total loans. Real estate has strong linkages to several upstream and downstream industries and sales are also a key source of local public finance (Liang, Gao, and He, 2006). However, real estate activity has softened towards the starting of the global financial crisis in 2008 where there is a slowdown in residential price growth, a contraction in transactions and new starts, and falling investment. This could be a major effect on real estate companies as properties are extensively used as collateral for corporate borrowing in China.

Since real estate industry is capital-intensive, the arrangement of capital structure plays an especially important role during the development of real estate companies. Therefore, it is interesting to find out that whether the determinants of capital structure

in Chinese real estate industry is the same as in other industries and other countries. Furthermore, if there are some similar factors could be employed to explain the Chinese real estate firms' arrangement of their capital structure, do these factors have similar effect or not?

The adverse impact of general economic uncertainty on the property market and its implications for future investment decision making have raised questions as to whether management are doing much more needed in reviewing their financing policies so as to constantly take pro-active majors (Kesimli & Gunay 2011; Shiller 2006). In more recent years, management are challenge to consider the improvements and reviewing of their financing policies that will reflect the current trend in the global financing policies to remain more competitive and resilience towards any unprecedented event such as the financial crisis thereby limiting the risk of financial failure or distress (Reinhart and Rogoff, 2009). Therefore the important of reviewing capital structure policies of an organisation is crucial to their survival and performance.

1.4 Research Objectives

The main objective of this study is to analyse the determinants of capital structure of Chinese REC. With the purpose of figuring out the answer, this study adopts multiple linear regression models to do empirical tests. The specific objectives are as follows;

1. To identify the firm-specific factors such as firm size, profitability, Non-debt tax shields, firm size, tangibility and liquidity that affects the capital structure of Chinese REC.
2. To identify the most influential and significant variables that determine leverage among REC in China.

1.5 Research Questions

The objective of this research is to analyze the determinants of capital structure of Chinese REC. With the purpose of figuring out the answer, this study adopts multiple linear regression models to do empirical tests.

1. What are the firm-specific factors such as firm size, profitability, NDTS, firm size, tangibility, and liquidity that affects the capital structure of Chinese REC?

2. What are the most influential and significant variables that determine leverage among REC in China?

1.6 Significance of Study

In practical this study will help Chinese REC to understand the general practices of capital structure and how does capital structure effect on its firm value in property/real estate industry. Most of the studies on the determinants of capital structure have been conducted in developed countries (Antoniou et al., 2002; Dong 2012; Kester 1986; Morri & Beretta 2008 and Myers 1977; Rajan and Zingales, 1995; Wald, 1999). Very little work has been done to examine the capital structure in the developing countries, especially East Asian countries namely, like China. To the best of knowledge, there are limited studies investigating the different type capital structure policies adopted by companies especially the real estate companies in China.

This study will also provide alternative guide for the financial managers decision makers on how to design their optimal capital structure to capitalize on the market value of the firm and reduce the agency cost. This study will help the managers of the real estate companies in China to make a good decision on the proportion of their capital

structure. It gives the managers the idea to change their financing strategies according to changes in economic conditions. They will also be able to determine the best financing pattern such as long-term debt, short-term debt or overall debt to measure a good impact on the firm's financial contribution to the economy.

The results also provide some insights for policy makers. Because several country specific factors are found to be significantly related to firms' financing decisions, the policy makers can shift the financing decisions to be favourable some sectors to the situation of country's economic landscape as a whole. In theoretical, this study will contribute to the current knowledge in the aspect of the determinants of capital structure of real estate firms in China.

1.7 Scope of the study

This study investigates the determinant of capital structure among real estate companies in China. The period covered by the study starts from 2005 to 2012 and the sample are selected by employing all companies that are listed in the real estate sectors excluding companies with missing data. Finally, multiple regression analysis will be used for the study.

1.8 Organization of the study

The remaining part of this study is structured as follows: chapter 2 provides an overview of literature review of the firms-specific factors and country-specific factors with reference of capital structure, theories of capital structure and the theoretical framework of the study. Subsequently, Chapter 3 explains the research methodology

which covers the sample, data collection method, measurement of variables, the technique of analysis and so on. Then, Chapter 4 will discuss the findings and the analysis and eventually, chapter five will conclude the summary of the findings as well as potential areas for future investigation.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter discusses the literature review of capital structure determinants. This chapter present an overview of capital structure theories and empirical evidence on firms-specific determinants of capital structure in Chinese real estate market.

This chapter consists of six sections. Section 2.2 explains the concept and theories of capital structure. Section 2.3 addresses the previous studies on the firm-specific variables and section While, section 2.4 is the chapter summary.

2.2 An overview of capital structure theories

Numerous studies have been carried out since the seminal work of Modigliani and Miller (1958) in an attempt to demonstrate debt to equity decisions. Most theories and studies have been associate with the capital structure and firm specific characteristics as well as country-specific characteristics. Among the theories are pecking order theory (Myers and Majluf, 1984) trade-off theory (Modigliani and Miller, 1958) agency theory (Jensen and Meckling, 1976) and market timing theory (Baker and Wurgler, 2002).

2.2.1 Modigliani and Miller (MM)

Miller and Modigliani (1958) first proposition (Proposition I) suggest that company's value remains the same at all levels of gearing, indicating that no optimal

capital structure exists for a specific company. Therefore capital structure is irrelevant to the value of the firm. They argued that in a perfect world where there is no cost associated with raising money, no transaction cost and no tax, the market value of a company depends on its expected performance i.e the number of available positive NPV projects at its disposal. Thus, bankruptcy risk could be ignored and companies in financial distress could always raise additional finance in a perfect capital market since capital structure of the firm would not have any impact on the firm's value.

Figure 2.1: M&M Proposition I

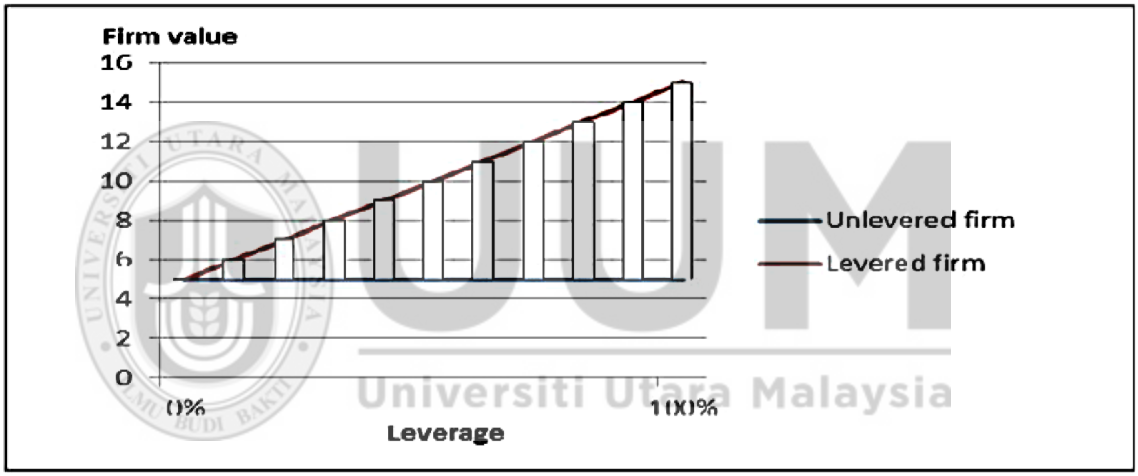


Figure 2.1 shows the first proposition of Modigliani and Miller (1958), where it illustrate that the value of the firm remains the same regardless of the debt and the equity ratio in the capital structure. MM proposition I proposed that the value of the levered firm equals the value of unlevered firm.

Modigliani and Miller (1958)'s proposition I has led to an interesting debate on financing mix. Studies indicate that Modigliani and Miller (1958) propositions fail if the following are taken into account taxation, bankruptcy cost and transaction cost. Miller and Modigliani (1958) acknowledged the rather unrealistic nature of their assumptions

in their paper as well. M&M theory does not offer a consistent description of how companies should establish their capital structure. It delivers an academic framework for understanding as why debt to equity decisions may be relevant (Frank & Goyal 2003).

After the early proposition of Modigliani and Miller (1958) of the irrelevancy of capital structure to the firm's value, Modigliani and Miller (1963) renewed their proposition known as Proposition II by recognising the existence of corporate tax. Their acknowledgement of the existence of corporate tax and the tax deductibility of interest payments implies that, as a company gears up by replacing equity with debt, it shields more and more of its profits from corporate tax. This suggests that the optimal capital structure for a company is 100 percent debt finance. Moreover, the value of unlevered firm goes below to that of the levered firm by an equal amount to the present value of the tax savings that arise from the use of debt.

However, there is obviously a problem with the M&M proposition II since in practice corporations do not adopt an all-debt capital structure. This indicates the existence of factors which may weaken the tax advantages of debt finance and which Miller and Modigliani Proposition II failed to take into account.

2.2.2 Trade-off theory

In a perfect capital market, a company will always be able to raise finance and thereby prevent bankruptcy. But in practice, while capital markets are considered to be efficient, they cannot be considered to be perfect. The reality is that, at high levels of gearing, there is a significant possibility of a company defaulting on its interest commitments and hence being declared bankrupt. Furthermore, at higher levels of

gearing, shareholders also require a higher rate of return to compensate them for facing bankruptcy risk as bankruptcy becomes a possibility (Hirshleifer, 1966; Kraus & Litzenberger, 1973; Robichek & Myers, 1965).

Figure 2.2: Trade off theory

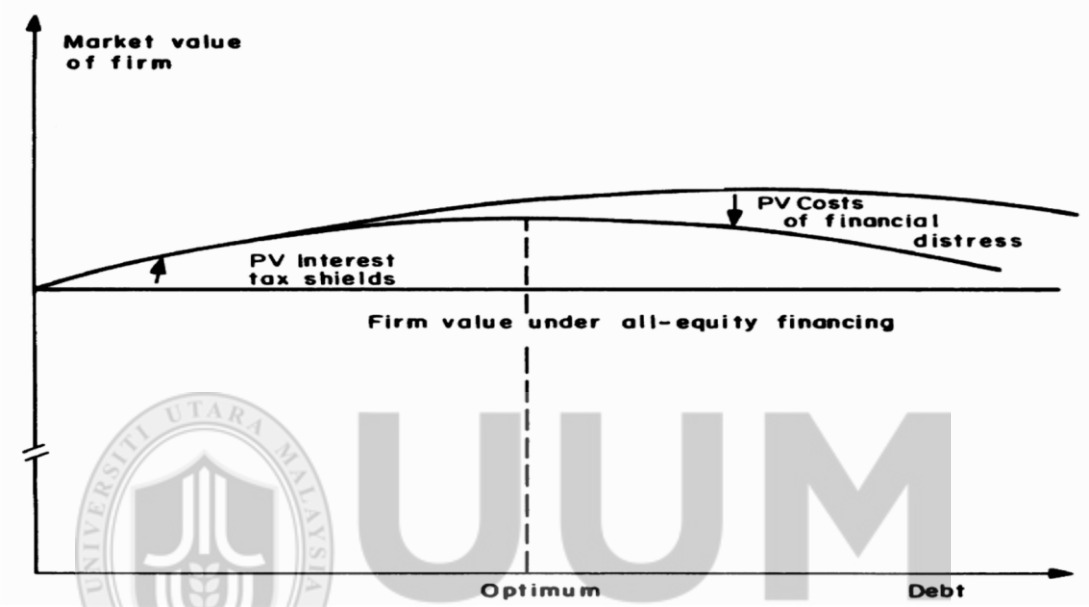


Figure 2.2 show that, company financed entirely by equity starts to increases it's gearing by replacing equity with debt, its market value increases due to the increasing value of its tax shield. Bankruptcy becomes a possibility when the gearing level increases beyond X and consequently the company's cost of equity starts to rise more steeply to compensate shareholders for facing high bankruptcy risk, which consequently will eat off the benefit of the tax shield. Beyond gearing level Y the marginal benefit of the tax shield is outweighed by the marginal increase in the cost of equity due to higher bankruptcy risk. An optimal gearing level therefore exists at gearing level Y.

The optimization of capital structure involves a trade-off between the present value of the tax rebate associated with a marginal increase in leverage and the present

value of the marginal cost of the disadvantages of leverage (Robichek & Myers, 1965). Firm's financing mix determines the states in which the firm will earn its debt obligation and receive the tax savings attributable to debt financing. The firm's financing mix also determines the states in which the firm is insolvent and incurs bankruptcy penalties (Hirshleifer, 1966; Kraus & Litzenberger, 1973). Thus, Hirshleifer (1966), Kraus and Litzenberger (1973) and Robichek and Myers (1965) have noted that both taxes and bankruptcy penalties should be considered in the determination of optimal leverage.

2.2.3 The Pecking Order Theory

Donaldson (1961) goes against the idea of companies having a unique combination of debt and equity finance which minimises their cost of capital. Rather, he suggest internal funds to be the first capital preference a firm should opt for before seeking external sources. In addition, debt should be preferred to equity. Empirically supporting his propositions, Donaldson (1961) maintained that when companies become more profitable, the keenness for external financing becomes slighter since internal funds would be available to execute long-term projects. If only internal finance proves insufficient, bank borrowings and corporate bonds are the preferred source of external source of finance. After exhausting both of these possibilities, the final and least preferred source of finance is issuing new equity capital.

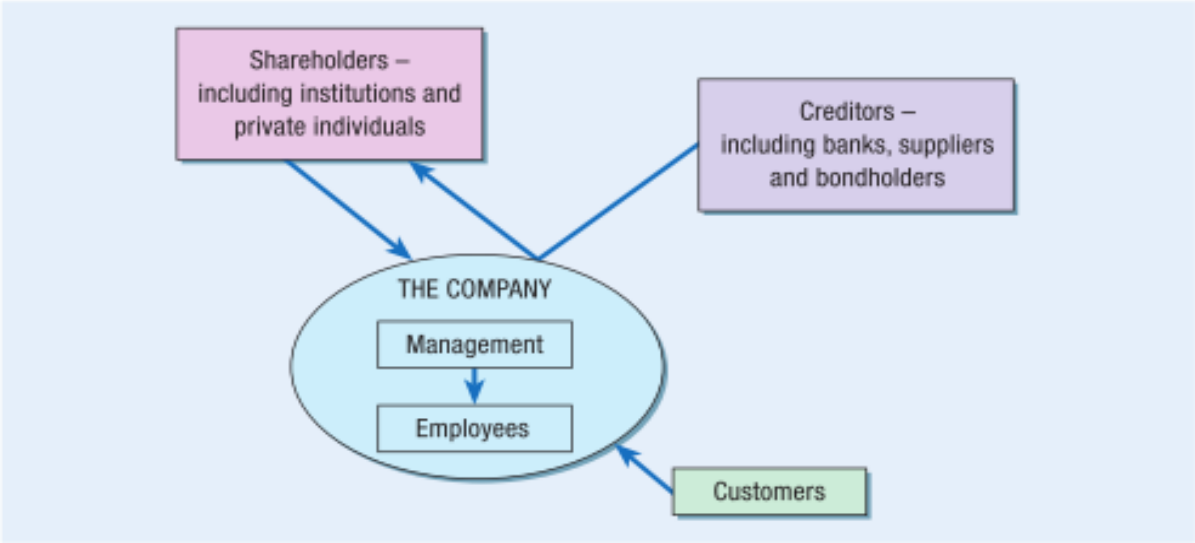
The order of preference stemmed from the existence of asymmetry of information between the company and the capital markets (Myers, 1984). For example, suppose that a company wants to raise finance for a new project and the capital market has underestimated the benefit of the project. The company's managers, with their inside

information, will be aware that the market has undervalued the company. They will therefore choose to finance the project through retained earnings so that, when the market sees clearly the true value of the project, existing shareholders will benefit.

2.2.4 The Agency Theory

The existence of agency problem has been traditionally associated with listed companies. The agency relationship is defined as a contract under which the principal (shareholders) engages the agent (managers) to perform some service on their behalf (Jensen & Meckling, 1976). As part of this, the principal will delegate some decision-making authority to the agent. The agency problem occur when managers make decisions that are not consistent with the objective of shareholder wealth maximisation. Additionally, the potential agency problem between a company's managers and its shareholders is not the only agency problem that exists. Jensen and Meckling (1976) further argued that the company can be viewed as a whole series of agency relationships between the different interest groups involved as shown in figure 2.3. Therefore agency problem can occur not only between equity holders but also between debt holders of a company.

Figure 2.3: The agency relationships in a company



Debt limit managerial discretion as developed in free cash flow hypothesis (Jensen, 1986). Most of the time managers tends to spend free cash flows by increasing the size of the firm through investing in negative NPV projects due to availability of free cash flow. Taking on more debt will likely be the solution for this problem because issuing more debt will increase interest and principal payments hence reduce availability free cash flows thereby reducing agency costs. However, high level of gearing and bankruptcy costs is associated with agency problem as well. Debt holders will not share in the higher returns from high-risk projects since their returns are not dependent on company performance. Hence they will take steps to prevent the company from undertaking high-risk projects which might put their investment at risk (Jensen & Meckling, 1976).

The simplest way for debt holders to protect their investment in a company is to secure their debt against the company's assets. In an event the company go into liquidation, debt holders will have a prior claim over assets which they can then sell in order to recover their investment (Jensen & Meckling, 1976). An alternative way for debt holders to protect their interests and limit the amount of risk they face is for them to

use restrictive covenants. These take the form of clauses written into bond agreements which restrict a company's decision-making process (Jensen & Meckling, 1976). Debt holders may also increase the level of management monitoring and require a higher level of financial information with respect to the company's activities.

2.3 Determinants of capital structure

As a starting point of this research, the study is going to outline the previous studies on capital structure, by highlighting those factors that contribute the explanation of capital structure. The purpose is to provide the findings of previous studies before explaining the model of the capital structure. This study consists of two components that reflect two strands on the relevant literature. The first component includes an overview of theoretical and empirical work that analyzes firm specific factors as determinants of capital structure (profitability, tangibility, firm size, non-debt tax shields, earnings volatility, and liquidity). One measures of leverage have been used as the dependent variables which is the total leverage.

2.4 Firm-specific determinants of capital structure

The determinants of capital structure have been widely discussed in the theoretical studies as well as in the empirical studies. In recent years, these studies have updated (Huang and Song, 2006). This part summarizes the findings of recent works both in the theoretical and empirical fields and briefly concludes the measurements of determinants that incorporates the firm-specific variables such as profitability, firm size, tangibility, non-debt tax shields, liquidity and growth as shown in table 2.1.

2.4.1 Profitability

Previous studies have suggested that two theories, namely the trade-off theory and the pecking order theory are used to explain the relationship between leverage and profitability. The trade-off theory proposes a positive relationship between the profitability of the firm and leverage. According to this theory, firms with a higher profitability should desire the use of leverage and it offers companies an incentive to utilize the tax shields on interest payments (Chang et al. 2008; Garvey & Hanka 1999). Besides that, highly profitable firms are able to pay their debt easily and at the same time, they have the incentive of taking more debt. In contrast, the pecking order theories suggest that managers prefer to finance projects with internal rather than external funds because of the asymmetric information between managers and outside investors. Therefore, this theory proposes a negative relationship between leverage and profitability (internal fund) (Myers, 1984). Titman and Wessels (1988) reported similar findings to that of the pecking order theory and argue that companies use less debt when profit is high since they have the ability to generate internal funds.

Myers and Majluf (1984) predicted that there is a negative relationship between debt and profitability. This finding is consistent with the previous argument that companies demand less debt when the firm is more profitable. They argued that the firms make financing decision based on hierarchal order. First internal funds are used, and then firms will issue debt if external source of financing is needed and finally they issue equity as the last option. Donaldson (1961), Rajan and Zingales (1995), Wald (1999) and Booth et al. (2001), similarly support pecking order theory.

Similarly, Chen (2004) investigated the capital structure in China and reported a negative relationship between leverage and profitability in Chinese listed firms and naturally support the pecking order theory. He argued that there may be other reasons for this negative relationship, such as to avoid new projects being mass-produced and underinvestment problems. Furthermore, Song (2005) reported that for Swedish firms, the relationship between profitability and total leverage and between profitability and long-term leverage are in line with the pecking order theory.

Deesomsak et al. (2004) reported that profitability is negatively related to debt, as predicted, but the relationship is insignificant for all countries except for Malaysia. Furthermore, the significant negative correlation for Malaysia was consistent with the predictions of pecking order theory, indicating that companies with higher profits desire to use internal financing. Most empirical studies indicated that profitability and leverage are negatively related such as Fama and French (2002), Cassar and Holmes (2003), Bauer (2004), Tong and Green (2005), Antoniou et al. (2008), Viviani (2008), De Jong et al. (2008), Nor et al. (2011) and Sheikh and Wang (2011).

However, Jensen (1986) contended that the relationship between profitability and firm leverage can be positive if the market for corporate control is effective in forcing corporations to commit to give out cash by financing more leverage because managers of the company cannot avoid the disciplinary role of debt and lenders have confidence on profitable companies that they can meet their obligations. If the corporate control of the market is ineffective, opposite signs will be expected because corporations will still escape the disciplinary role of debt. Furthermore, Kjellman and Hansen (1995) and Myers (2001) contended that highly profitable corporations could have a high level of debt and less danger of bankruptcy without risking financial distress. Hence, the

relationship between profitability and firm leverage should be positive. Several studies reported similar findings such as Ross (1977), Heinkel (1982) and Prasad et al. (2003).

Furthermore, Roden and Lewellen (1995) examined capital structure of 48 companies in United States covering from 1981-1990 and implied that profitability is positively related to debt. Similarly, Nimalathasan and Valeriu (2010) show that for Sri Lankan manufacturing companies, leverage is significantly positively related to all kinds of profitability ratios (gross profit, operating profit and net profit ratios). Champion (1999), Gosh et al. (2000), Hadlock and James (2002) and Berger et al. (2006) also depicted that profitability is positively related to debt.

2.4.2 Firm Size

Firm size and leverage findings are ambiguous. Rajan and Zingales (1995) found that bigger companies tend to be more diversified and have more stable cash flow and, thus, the percentage of defaults is lower compared to small firms. As such, the above study is consistent with the expectations of static trade-off theory which proposed that large companies borrow as much debt as they prefer because they are more diversified, comparatively lower bankruptcy costs and less prone to bankruptcy. This result recommends a positive relationship between the size of the firm and leverage.

The pecking order theory argued that since the larger firms has a less severe information asymmetry, hence, firm size positively related to leverage Wald (1999) found a statistically significant positive relationship between debt and size for companies in the UK, Japan and USA, but insignificant positive correlation for firms in France and a negative relationship for firms in Germany. Similarly, Deesomsak et al.

(2004) also found that firm size is positively related to leverage in Malaysia, Thailand and Australia, except Singapore. They further found that companies in Singapore obtained government support therefore, whatever their size is, they will face less risk of financial distress. Likewise, De Jong et al. (2008) who studied capital structure determinants in 42 countries found that half of the countries in the sample have a positive relationship between firm leverage and its size. This showed that larger companies have more debt because they are more stable in cash flow as well as more diversified. As such, this study is consistent with the previous studies such as Prasad et al. (2003) who found a significant positive relationship between firm size and short-term debt, while an insignificant influence is noted for long-term debt.

Wiwattanakantang (1999) claimed that larger companies have a better opportunity over smaller companies in accessing credit markets, thus, this gives the larger companies the chance to raise their leverage. With respect to the information asymmetry, large firms tend to have more information and this will decrease the information asymmetries in the market (Padron et al., 2005 and Graham, 2000). As such, larger companies have the ability to borrow a higher amount of debt compared to smaller companies. As a result of this, larger companies should utilize from the tax shield on interest payment. Similarly, Antoniou et al. (2002) revealed that larger corporations have lower information asymmetry; hence, they are able to access the debt markets and can easily borrow at lower cost.

Delcoure (2007) conducted a research on the determinant of capital structure in Central and Eastern European (CEE) countries and found that short-term leverage and firm size has a significant positive relationship. However, the relationship between firm size and long-term leverage for Slovakia, Poland and Czech Republic is negative. This

negative relation is due to the existence of information asymmetries proposed by Myers and Majluf (1984) and an underdeveloped state of the bond market in these transitional economies. Also laws dealing with financial distress are still developing, leaving debt holders unprotected in the event of default and forcing companies to acquire funds through short-term loans.

However, an important exception is provided by Marsh (1982) who examined the choice between debt and equity financing in United Kingdom firms between 1959 and 1974 and found that small companies select short-term leverage because they are not diversified. Similarly, Whited (1992) found a negative relationship between firm size and long-term leverage because small companies are not able to access the long-term leverage since their prospects and growth exceeds collateralizable assets.

Kayo and Kimura (2011) opposed the findings of Wiwattanakantang (1999) where they found a significant negative relationship between firm size and leverage in developing and developed countries. This shows that large companies use less leverage. Likewise, Chen (2004) performed a preliminary study of capital structure in Chinese listed firms, found that the relationship between long-term leverage and firm size is negative but statistically significant. In addition, Casar and Holmes (2003) suggested mixed findings, they showed that there is a negative relationship between firm size and short-term leverage, but the relationship is positive with long-term debt.

2.4.3 Tangibility (Asset Structure)

Tangibility is subject to several debates and many studies have been done to distinguish the influence of tangibility on debt. Yet, the literature review indicates

inconsistent and ambiguous findings. The trade-off theory argues that the relationship between tangibility and debt is positive. Regarding the above theory, Myers and Majluf (1984) contended that companies might find favourable to sell secured debt for the reason that there are costs related with issuing securities about which company's manager has better quality information compared to outside shareholders. Therefore, issuing debt secured by the collateral avoids these costs. Furthermore, this result recommends that leverage and tangibility have a positive relationship because firms holding assets can tender these assets to lenders as collateral and will issue more leverage to benefit these incentives. As such, tangibility plays a crucial role in deciding capital structure. Ina addition, Myers (1977) argued that highly levered firm shareholders have incentive to invest below an optimal level or standard to take over wealth from the firm's debt holders. Jensen and Meckling (1976), Titman and Wessels (1988), and Rajan and Zingales (1995) reported similar findings.

Alternatively, Padron et al. (2005) claimed that since tangible assets has less informational asymmetries and have a bigger value compared to intangible assets on the assumption of bankruptcy, the firm's tangible assets are expected to have an influence on company's debt financing. Thus, the higher the percentage of tangible assets, the higher the leverage.

Frazer et al. (2006) reported that there is a positive and significant relationship between tangibility and debt. This finding support with those from Western firms. The study showed that tangible assets can be used as collateral and it plays an important role in a company's capacity to take more leverage. Similarly, Suto (2003) and Prasad et al. (2003) found a positive association between leverage and tangibility and it was statistically significant for Malaysian listed firms. Chen (2004) provided empirical

support for his study in China and reported that tangibility is positively related to firm's debt for long-term leverage. The result justified that tangible asset is a crucial criterion for long-term loans and bank's credit policy. Deesomsak et al. (2004) suggested that the relationship between tangibility and firm leverage is positive but statistically insignificant, except for Australia. This finding is supported by the previous studies such as Wiwattanakantang (1999) for Thailand firms.

Tesfaye et al. (2012) studied capital structure decision within the context of nine African countries, using a sample of 986 companies covering the period from 1999 to 2008. They found that the relationship between tangibility and leverage is positive and significant for both short-term leverage and long-term leverage. This implied that companies with more tangible assets can easily access long-term leverage because those companies can simply use their tangible assets as collateral. This study is consistent with tax/bankruptcy and agency theory, which argued that companies with higher tangible assets have a lower agency costs and lower bankruptcy costs. Bevan and Danbolt (2002) and Frank and Goyal (2009) reported similar findings.

On the other hand, the agency theory proposes that companies who have less collateralizable assets tend to use a higher amount of debt to reduce manager's consumptions of benefit. Agency theory recommends a negative relationship between leverage and tangibility. Booth et al. (2001) conducted research on developing countries and reported that tangibility and leverage are positively related for companies in India, Pakistan, Turkey and Brazil. In the same way, Sheikh and Wang (2011) also addressed the same findings. A number of other studies also found a negative relationship between leverage and tangibility such as Bauer (2004), Karadeniz et al. (2009) and Mazur (2007). Mateev et al. (2013) conducted a study of the SME in Central and Eastern Europe. They

suggested that the relationship between tangibility and leverage depends on the types of debt that the companies employed. They found that short-term debt has a negative relationship with the tangibility, whereas this relationship becomes positive if the companies used long-term debt.

Gallego and Loayza (2000) suggested a negative relationship between tangibility and leverage. Showing that a rise in asset tangibility appears to shift the financial structure of the firm toward higher equity and lower debt in Chile. The pecking order theory also predicts negative influence of tangibility on firm leverage. Grossman and Hart (1982) found that firms with limited tangible assets should have high debt to reduce the agency costs of equity because debt allows the firm to be more stringently monitored by creditors such as bondholders and financial intermediaries. High-tangible-asset firms tend to have high fixed operating costs, which raise the operating risk and probability of bankruptcy. Therefore, negative relationship between asset tangibility and leverage is reported.

2.4.4 Non-debt tax shields

Previous researches have acknowledged mixed findings on the impact of NDTS on debt. DeAngelo and Masulis (1980) examined the tax shield effects on capital structure decisions and found that companies with higher NDTS in respect to their anticipated cash flow will use lower leverage in their debt to equity ratios in comparison with those companies who have a lower non-debt tax shields. They argued that firms can use other measures to protect income such as pension funds, depreciation, and tax credits to decrease corporate tax payments and not only depend on interest tax-shield.

This study recommends that companies with higher NDTS are anticipated to use a small amount of debt on their capital structure and therefore, the relationship between firm leverage and non-debt tax shields should be negative.

Wiwattanakantang (1999) performed an empirical study on the determinants of the capital structure of non-financial firms in Thailand. The findings implied that NDTS and firm leverage was negatively and statistically significant in all regressions. Therefore, this study is consistent with the tax based theory. The results also support DeAnglo and Masulis (1980) who argued that NDTS are substituted for debt financing. Similarly, Deesomsak et al. (2004) suggested negative relationship between non-debt tax shields and leverage and statistically significant for all the countries.

However, a positive relationship between NDTS and leverage is possible because firms can borrow at low interest rates if their debts can be secured by tangible assets and firms may have a higher amount of debt capacity if they have high levels of tangible assets. Scott (1977) revealed that companies with substantial NDTS invariably have considerable collateral assets, which can be used to secure debt; therefore, firms can borrow at lower interest rates. Bradley et al. (1984) found a significant positive association between non-debt tax shields and firm's leverage. This result suggested that companies with large tangible assets were having a high level of depreciation and subsequently a higher leverage for the tax credits. Hence, the study by Bradley et al. (1984) invalidated the DeAnglo and Masulis (1980) argument on the substitute between interest tax shields and NDTS. Furthermore, Delcoure (2007) suggested a positive relationship between the non-debt tax shields and short-term debt as well as long-term debt.

Tesfaye et al. (2012) reported mixed findings and suggested that the relationship between non-debt tax shield and firm leverage depends on the type of leverage employed by the firms. Where it is positively related with the long-term leverage and negatively correlated with the short-term leverage. This result is partially consistent with the argument of DeAnglo and Masulis (1980) where increase in non-debt tax shields will decrease that tax advantage that result from interest deduction. Viviani (2008), Wald (1999) and Bauer (2004) reported similar findings in this study.

On the contrary, some studies, such as Titman and Wessels (1988), suggested that a non-debt tax shield has no relationship with debt. Prasad et al. (2003) revealed that the relationship between non-debt tax shields and debt depending upon the way in which the tax shield is measured. Berger et al. (2008) performed a comparative study on determinants of capital structure between the large corporations in the US and Republic of Korea. They reported an insignificant relationship between non-debt tax shields and debt ratios for both US and Korea. Their study is consistent with Bauer (2004).

2.4.5 Liquidity

Numerous studies have investigated leverage and firm liquidity and the linkage between firm leverage and liquidity is ambiguous. Three theories can be taken into consideration of the relationship between liquidity and leverage. Initially, the static trade-off theory proposes that due to the capacity to meet contractual agreements on time, firms with higher liquidity ratios should borrow a higher debt since they have sufficient cash to cope with creditor's liability. Hence, trade-off theory forecasted that firm liquidity has positively related to leverage. This hypothesis is supported by Al-Najjar

and Taylor (2008) who examined capital structure of 86 Jordanian firms from 1994 to 2003 by using panel data. They found that firm's liquidity positively associated with leverage, which supports the trade-off theory. As such, liquid companies can easily access leverage. Moreover, this is a good incentive for the lenders since the companies are able to pay the short-term and long-term obligations.

Mateev et al. (2013) investigated 3175 SMEs in Eastern and Central Europe by using a unique data set for the period of 2001-2005. The findings indicated a strong positive relationship between SME liquidity and debt, both short-term, long-term debts, suggesting that SMEs with greater liquidity will use more long-term leverage in order to support the firm growth. This finding is in line with Fama and French (2002). Mouamer (2011) who found that liquidity and long-term debt is positively and significantly related to Palestinian listed firms. However, Mouamer (2011) revealed that the relationship between liquidity and short-term debt is negative and significant.

On the other hand, the pecking order theory argued that companies prefer to finance new investment by using internally generated funds when there is a greater liquidity ratio. Hence, this theory suggests a negative relationship between liquidity and leverage. Deesomsak et al. (2004) reported that the relationship between liquidity and firm leverage is negative in Malaysia, Thailand, Singapore and Australia. The results indicated that companies tend to use their liquid assets to finance future investment opportunities.

Similarly, Viviani (2008) investigated 410 French wine companies during the period of 2000 to 2004. The study revealed a negative influence of liquidity on leverage and consistent with the predictions of pecking order theory. Antoniou et al. (2008) implied that company's liquidity position should have a negative influence on firm's

leverage for companies with more liquid assets tend to use the liquid assets as internal source of financing new investment. Eriotis (2007) also suggested that companies with greater liquidity should finance their future investment opportunities following the financing pattern suggested by the pecking order theory.

More importantly, Afza and Hussain (2011) examined capital structure determinants for companies listed in three different sectors in Pakistan, namely Cable and Electrical goods, Engineering and Automobile sectors. The findings indicated that companies with vigorous liquidity position and bigger depreciation tend to use retained earnings, followed by debt financing for growth and lastly equity financing. Hence, there is negative relationship between liquidity and leverage. Likewise, De Jong et al. (2008) revealed a negative relationship between liquidity and debt because companies with higher liquidity tend to borrow less.

However, the agency theory reveals that managers of the firm can easily manipulate liquid assets by supporting the interest of shareholders compared to the interest debt holders. Due to this interest the agency cost of debt will increase. Agency theory implied that liquidity negatively associated with leverage. More importantly, Myers and Rajan (1998) contended that once the agency theory is high, lenders reduce the company's debt that is accessible. Therefore, they revealed a negative relationship between firm leverage and liquidity.

Table 2.1

Summary of theories and empirical evidences capital structure

Variables			Empirical evidences
Dependent variable LEVERAGE	**Theories**	**Expected sign by the theories**	
Independent variables PROFITABILITY	Trade-off	+	Roden and Lewellen (1995), Champion (1999), Gosh et al. (2000) and Berger and Bonaccorsi (2006).
	Pecking order	-	Myers and Majluf (1984), Titman and Wessels (1988), Rajan and Zingales (1995), Wald (1999), Booth et al. (2001), Chen (2004), Deesomsak et al. (2004).
SIZE	Trade-off & Pecking order	+ -	Titman and Wessels (1988), Rajan and Zingales (1995); Wald (1999); Wiwattanakantang (1999); Deesomsak et al. (2004), Barclay and Smith (2005), Delcoure (2007) and De Jong et al. (2008).
TANGIBILITY	Trade-off	+	Myers and Majluf (1984), Titman and Wessel (1988), Rajan and Zingales (1995), Deesomsak et al. (2004); Gaud et al. (2005), Frazer et al. (2006) and Tesfaye et al. (2012).

	Pecking order	-	Ferri and Jones (1979), Booth et al. (2001); Bauer (2004), Mazur (2007), Karadeniz et al. (2009) and Sheikh and Wang (2011).
NON-DEBT TAX SHIELD	Trade-off	-	DeAngelo and Masulis (1980), Wald (1999), Bauer (2004), Deesomsak et al. (2004); Wiwattanakantang (1999), Delcoure (2007), De Jong et al. (2008), Viviani (2008) and Tesfaye et al. (2012).
LIQUIDITY	Trade-off	+	Al-Najjar and Taylor (2008), Mouamer (2011), Mateev et al. (2013).
	Pecking order	-	Myers and Rajan (1998), Deesomsak et al. (2004), Eriotis (2007), Antoniou et al. (2008), De Jong et al. (2008), Viviani (2008), and Afza and Hussain (2011).

2.6 Chapter Conclusion

This chapter explains the previous studies on capital structure. First, it explains the theories of capital structure such as Modigliani and Miller (1958), trade-off theory, pecking order theory, agency theory and market timing theory. Secondly, this chapter investigates the influence of firms-specific factors (profitability, firm size, tangibility, non-debt tax shields, liquidity) on capital structure decisions. Finally, this chapter also summarized the empirical evidence based on capital structure theories.

CHAPTER 3

RESEARCH DESIGN

3.1 Introduction

The chapter reveals the methodology used to achieve the objectives of the study. The chapter further clarifies the procedure use in building the data set and provides a comprehensive description of the analysis and research design on firms' specific determinants of Chinese real estate company capital structure.

The chapter is subdivided into six different sections. Section 3.2 describes the data collection and sample design followed by section 3.3 that represents the theoretical framework. Section 3.4 explains the measurement of variables and hypothesis development. Section 3.5 describes the sampling design and section 3.6 explains the data analysis technique, employed by the study. Section 3.7 represents the chapter summary.

3.2 Data collection and sample design

This study examine capital structure determinants of real estate companies in China, listed on the Shanghai Stock Exchange and Shenzen Stock Exchange 2005 to 2012. The data used in this study were extracted mainly from Datastream.

The choice of the real estate sector was motivated by several factors. First, the literature determinant of capital structure focusing on firm-specific factors in China are rather limited. Second, to the best of knowledge, no study have examine capital structure determinants of real estate companies in China, by providing a wider sense of

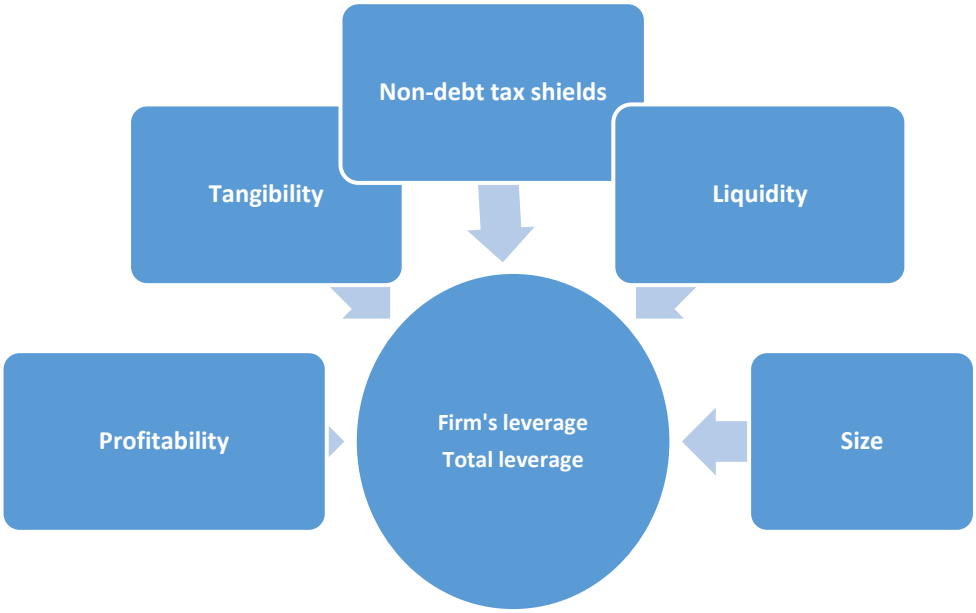
knowledge on how the companies in this country determine their capital structure between 2005 to 2012. The real estate sector in China is contributing tremendously to the economy growth and development. According to the latest statistics; the real estate sector in China contribute 15 percent to GDP growth in 2014, which just stood at 4 percent contribution in 1997, an increase of 275 percent within 17 years (Chivakul et al. (2015). Furthermore, Bank lending to the sector accounts 20 percent of total loans. Real estate has strong linkages to several upstream and downstream industries and sales are also a key source of local public finance (Liang, Gao, and He, 2006). Properties are extensively used as collateral for corporate borrowing.

The sample criterion was firstly, to select all firms in the real estate sector that are listed on the Shanghai Stock Exchange and Shenzen Stock Exchange 2005 to 2012. There are 141 real estate companies (REC) listed. However, all the companies with missing data has been deleted and the final sample consists of 70 with a total of 561 observations.

3.3 Theoretical Framework

The framework demonstrates that the relationship between the determinant of capital structure and firm's leverage. There are five independent variables that are firm-specific variables. The dependent variable is the firms leverage and it will be measure as total leverage.

Figure 3.1: Research theoretical framework



3.4 Hypothesis Development

The study of the relationship between the capital structure and firm-specific factors derives five hypotheses that are:

3.4.1 Profitability

In pecking order theory, firms prefer using retained earnings as the zero of financing, then debt and as a last resort will decides to issue equity. Similarly, debt are issue by companies if the retained earnings are not sufficiently enough or were exhausted. As such, the firms with more profits are consider to have more retained earnings. Therefore, a negative relationship is expected between leverage and profitability as reported my studies (see Bauer 2004; Cassar and Holmes 2003; De Jong

et al. 2008; Donaldson 1961; Fama and French 2002; Haron et al. 2011; Huang and Song 2006; Myers 1984; Myers and Majluf 1984; Sheikh and Wang 2011; Tong and Green 2005; Viviani 2008; and Zoppa and McMahon 2002).

But as a result of tax deductibility benefit, firms with high amount profits should use additional debt to get an attractive tax shields because the firms will be having high incomes to shield. Therefore there are studies that found a positive relationship between profitability and firm leverage such as the study of Champion (1999), Frank and Goyal (2003), Gosh et al. (2000), Heinkel (1982), Prasad et al. (2003) and Ross (1977). Therefore, this study hypothesized that:

H1: There is a significant relationship between the profitability and firm leverage.

3.4.2 Tangibility

The shareholders of a leveraged firm have an incentive to invest sub-optimally according to the agency cost theory (Titman and Wessels, 1988). As a consequence, the more tangible the firm's assets are, the more the assets can be used as collateral. A positive relationship is therefore expected between tangible assets and debt (see Bhaduri, 2002; Bradley et al., 1984; Chen, 2004; Deesomsak et al., 2004; De Jong et al., 2008; Huang and Song, 2006; Grossman and Hart, 1982; Jensen and Meckling, 1976; Padron et al., 2005; Rajan and Zingales, 1995; Sheikh and Wang, 2011; Viviani, 2008; and Wald, 1999).

There are however few studies that have found a negative relationship between tangibility and leverage such as the study of Bauer, (2004), Booth et al., (2001), Gallego and Loayza., (2000), Karadeniz et al., (2009) and Mazur, (2007).

H2: There is a significant relationship between the tangibility and leverage.

3.4.3 Non-debt tax shields

Non-debt tax shields are the substitute of the tax shields on debt financing (Bradley et al. 1984; DeAngelo & Masulis 1980). Firms with a higher non-debt tax shields, are anticipated to use lower debt in their capital structure. Bradley et al. (1984) have revealed a stronger relationship between leverage and the relative amount of non-debt tax shields. Deesomsak et al. (2004) and Wald (1999) however found a significant negative relationship between leverage and non-debt tax shields. Viviani (2008) has shown a significant negative relationship only between short-term debt ratio and non-debt tax shields. Bauer (2004) has shown a negative not significant relationship between non-debt tax shields and the measures of leverage.

H3: There is a significant relationship between the non-debt tax shields and leverage.

3.4.4 Liquidity

Previous studies demonstrated that firm liquidity is negatively related with leverage. Pecking order theory of capital structure postulates that companies with a huge amount of liquid assets desire to finance internal funds. This hypothesis is in line with the results of Antoniou et al. (2008), Deesomsak et al., (2004), Mazur (2007) and Viviani, (2008). However, the trade-off theory proposed that firms with higher liquidity

should borrow more because they can meet their contractual obligations on time. Thus, this theory predicts a positive linkage between liquidity and leverage.

H4: There is a significant relationship between the liquidity and leverage.

3.4.5 Firm size

A positive relationship is expected as suggested by the trade-off theory between firm size and leverage. Bhaduri (2002), Gaud et al. (2005) and Rajan and Zingales (1995) argued that larger firms are more expanded in terms of business operations and that lower the possibility of bankruptcy because they are able finance higher amount of debt. Furthermore, they implied that the firms have better and non-volatile cash flow, thus firm size is positively related to debt. Empirical studies have stated significant positive relationship between leverage and firm size (see Bauer, 2004; Deesomsak et al. 2004; De Jong et al. 2008; Eriotis et al. 2007; Marsh, 1982; and Zou and Xiao, 2006). However, there are few studies to mention that have found a negative relationship between firm size and debt (Chen, 2004; Kayo and Kimura, 2011; Whited, 1992). Therefore, this study hypothesized the relationship between firm size and leverage.

H5: There is a significant relationship between firm size and leverage.

3.5 Methodology

In the analysis of firm-specific determinants of leverage, a review of theoretical studies and empirical studies of prior literature is given in chapter two. The methodology of testing the explanatory variables is to run multiple linear regression models. This study used panel data because data consists of sample across firms and over time.

Multiple regressions were used to estimate the relationship between the independent and the dependent variables. Multiple regression is one of the most important tools applied in economics use to understand the relationship among more than two variables (Koop, 2005). The basic working rule is to build a regression equation at first, and then put a set of data into it to run the model. Specifically, the study of the relationship between capital structure determinants is executed by using the ordinary least squares (OLS) regression.

Additionally, the study will run on descriptive analysis and test the existence of a multicollinearity problem by identifying the correlation coefficient between the variables. The following multiple regression equations is proposed for the data collected and could describe the multiple linear relationships between the dependent variable and its explanatory variables.

Model

$$Y = C_D + C_E$$

Where *Y* stand for LEV measure as total leverage, C_D stands for high levered firm, C_E stands for low levered firm.

$$LEV_{it} = \beta_0 + \beta_1 PROF_{it} + \beta_2 TANG_{it} + \beta_3 NDTS_{it} + \beta_4 LIQ_{it} + \beta_5 SIZE_{it} + \varepsilon$$

While the following notation is used to define the variables in the empirical model. β_0 = Constant; *PROF:* Profitability; *TANG*: Tangibility; *NDTS*: Non-debt tax shields; *LIQ:* Liquidity; *SIZE:* Firm size; $_i$: the individual REC in China; $_t$: the time period; ε: error term

3.6 Variables Measurement

The measurement of variables has been derived from the previous studies. The definitions of the indicators of firm-specific variables are shown in Table 3.1.

Table 3.1

Measurement of variables.

Determinants		**Measurements**	**Sources of Measurement**
Total Leverage	LEV	Total debt/ Total assets	
Profitability	PROF	EBIT/Total assets	Bauer (2004); Cassar and Holmes (2003); De Jong et al. (2008); Donaldson (1961); Fama and French (2002)
Tangibility	TANG	Total fixed assets/Total assets	Bhaduri, (2002); Bradley et al., (1984); Chen, (2004); Deesomsak et al., (2004); De Jong et al., (2008)
Non-debt tax shield	NDTS	Depreciation/Total assets	Deesomsak et al. (2004) and Wald (1999)
Liquidity	LIQ	Current assets/ Current liabilities	Antoniou et al. (2008), Deesomsak et al., (2004), Mazur (2007) and Viviani, (2008).
Firm size	SIZE	Natural logarithm of assets	Bhaduri (2002), Gaud et al. (2005)

CHAPTER 4

EMPIRICAL RESULTS AND DISCUSSION

4.1 Introduction

In this chapter the results of the data analysis are presented. The data were collected and then processed in response to the problems posed in chapter one of this study. The objective of this research is to analyse the determinants of capital structure of Chinese REC. With the purpose of figuring out the answer, this study adopts multiple linear regression models to do empirical tests.

4.2 Descriptive Statistics

Descriptive statistics consist of the mean and the standard deviation. The mean deviation represents the average of the sample. The standard deviation measures the amount of variation or dispersion from the average. Table 4.1 presented the results of mean differences on the variables used to estimate the result. It provides a summary of descriptive statistics for the variables employed in this chapter particularly mean and standard deviation. The Chinese REC firms a consider not to be having high leverage as compare to their counterpart in the US and UK were the mean of leverage is around 58 percent in the US, while in the UK leverage is around 54 percent (Rajan and Zingales, 1995). REC Firms in developed countries are highly levered compared to firms in emerging markets. But the firms is this sample are having a mean of leverage is 30.85 percent. The descriptive analysis shows that REC firms in China are keeping a moderate level of leverage in their operations. This is consistent with Demirguc-Kunt and

Maksimovic (1999) and Rajan and Zingales (1995) who contended that developing countries have a considerably lower amount of leverage.

Table 4.1

Descriptive Statistics

Variables	Minimum	Maximum	Mean	Std. Deviation
LEV	.0000	2.7963	.3014	.3351
PROF	-.8807	1.6768	.1029	.1656
TANG	.0002	.9613	.4073	.2286
NDTS	.0000	.1698	.0364	.02415
LIQ	.0861	455.0483	4.4418	23.7799
SIZE	17.4612	25.9178	21.0049	1.6657

Note: LEV: Leverage; PROF: Profitability; TANG: Tangibility; NDTS: Non-debt tax shields; LIQ: Liquidity; SIZE: Firm size.

On average, the REC companies appears to be more profitable. This evident by the high level of liquidity the companies are having. The high amount of liquidity could be explain by the uncertainty of the market as such the companies will be keeping a lot of their assets idles for the period. Funding options are limited, firms would prefer to keep their profits in the company as an internal funding source and make profitable investment decisions.

On average 40.73 percent of the firm's assets are fixed assets which can be used as collateral. So firms with high asset tangibility should have greater borrowing capacity. The mean of asset tangibility for listed companies in the UK is 35.6 percent while tangibility in the US is 39.5 percent (Antoniou, 2008). Similarly, the average overall Tangibility of 35.6 percent that we report is comparable to the average of 34 percent reported in the Lemmon et al. (2008) and Frank and Goyal (2003) studies; or the 33.1 percent reported by Faulkender and Petersen (2006). Hence listed firms in developing countries rely on high asset tangibility for debt financing. The reason might be that companies which retain investments in land, equipment and other tangible assets will have smaller costs of bankruptcy than companies that rely on intangible assets. On the other hand, the result highlighted the mean score and standard deviation for the non-debt tax shields was the lowest.

4.3 Pearson correlation

A Pearson correlation test was employed to investigate the relationship between the dependent and independent variables and the results are summarised below in table 4.2. The test was run on the full sample set of the study. The findings shows that the

correlations among the variables are relatively low ranging from 0.004 to 0.539 and majority (19) of the relationships are significant. However, SIZE against NDTS, PROF against LIQ, TANG against LIQ and NTDS against LIQ are found not to be significant. Furthermore, TANG against NDTS are having a strong positive relationship of 0.539.

Table 4.2

Pearson Correlation

	LEV	**SIZE**	**PROF**	**TANG**	**NDTS**	**LIQ**
LEV	1					
SIZE	.229**	1				
PROF	-.305**	.160**	1			
TANG	.263**	.176**	-.268**	1		
NDTS	.469**	.024	-.187**	.539**	1	
LIQ	-.117**	-.130**	-.075	.004	-.017	1

Note: **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). LEV: Leverage; PROF: Profitability; TANG: Tangibility; NDTS: Non-debt tax shields; LIQ: Liquidity; SIZE: Firm size.

Testing the multicollinearity is one of the ways that is used to make sure whether the variables used in the study are highly correlated or not. Multicollinearity problem causes variables in a multiple regression to be highly correlated. Computing the Variance Inflation Factor (VIF) for each independent variable is a widely used method to detect and measure multicollinearity. Multicollinearity is not a threat to this study as indicated by the low pair-wise correlation among the variables. To further verify that multicollinearity is not a problem to this study, a variance inflating factor (VIF) is reported in table 4.3. The R^2 are relatively low for all the variables. The VIF ranges from

1.024 to 3.348 which is less than 10 indicating there is no issue of multicollinearity to this study.

Table 4.3

Variance inflating factor

Variables	**Tolerance**	**VIF = $1/(1-R^2_j)$**
SIZE	.881	1.135
PROF	.876	1.142
TANG	.642	1.559
NDTS	.700	1.429
LIQ	.977	1.024

Note: LEV: Leverage; PROF: Profitability; TANG: Tangibility; NDTS: Non-debt tax shields; LIQ: Liquidity; SIZE: Firm size.

4.4 Model Regression Analysis

Multiple regression analysis was performed s can be seen in table 4.4 and a comparison of the models is carried out where the focus is on firm-specific determinants among Chinese REC. The objective was to investigate whether there are any differences in the determinants of capital structure

Analysing the significance of independent variables in both models, five out of eight can be defined as orienting factors in explaining leverage. PROF, TANG, NDTS, LIQ and SIZE have lower p-values than 0.01, upholding an impressive high statistical

significance of terms. The most powerful factor in affecting LEVERAGE decisions in all the three models are NDTS, PROF, TANG and SIZE.

NDTS is having the highest positive influence on leverage and statistically significant. The result shows that non-debt tax shields is positively related to total debt for Chinese REC companies. This study supports Bradley et al. (1984) who found a significant positive association between non-debt tax shields and firm's leverage. Similarly, Delcoure (2007) found that non-debt tax shields is positively related to leverage for companies in transitional economics. Chen (2004) who depicted that firms with a higher NDTS, have a higher leverage due to a higher level of tangible assets, therefore, more tangible assets with a high non-debt tax shields lead a higher amount of debt.

However, the result fails to confirm the predictions of DeAngelo and Masulis (1980) NDTS such as a tax deduction for depreciation and investment tax credits are substitutes for the tax benefit of debt financing. However, for this study there is a positive relationship between non-debt tax shield and leverage, one of the reasons for this could be the benefits of debt, lower bankruptcy risks as well large firms prefer raising debt even in the presence of non-debt tax shields.

Secondly, PROF is the second highest influencer on leverage which negatively significant in both models and in line with the pecking order theory. Rajan and Zingales (1995) also found a negative correlation among the two variables, even if with very different coefficients in each country. Myers (1977), Fama and French (2002) and Hovakimian (2004) also agree with this finding and reinforce, for healthy companies that are able to implement it, the preference for an internal funding strategy. These findings implied that the higher the profit in Chinese REC, the lower the amount of leverage. The

results are also consistent with Antoniou et al. (2008), Bevan and Danbolt (2002), Chen (2004), De Jong et al. (2008), Myers and Majluf (1984), Nor et al. (2011), Pandey (2001), Rajan and Zingales (1995), Sheikh and Wang (2011), Titman and Wessels (1988), Viviani (2008) and Wiwattanakantang (1999).

Table 4.4

Regression Models

Variables	**Coefficient**	**SE**	**t-value**	**Sig**
(Constant)	-.953	.149	-6.409	.000***
PROF	-.606	.074	-8.233	.000***
TANG	-.171	.062	-2.740	.006***
NDTS	6.490	.565	11.484	.000***
LIQ	-.001	.000	-2.785	.006***
SIZE	.055	.007	7.623	.000***
R Square	0.354			
Durbin Watson	0.579			
F-value	60.696 (0.000)**			

Note: LEV as dependent variables. ** Significant at the 0.05 level. LEV: Leverage; PROF: Profitability; TANG: Tangibility; NDTS: Non-debt tax shields; LIQ: Liquidity; SIZE: Firm size.

Table 4.4 also shows that TANG is the third influencer and has a significant positive relationship to overall leverage for Chinese REC firm. The positive relationship gives support to the trade-off theory which postulates that tangible assets act as collateral

and provide security to lenders in the event of financial distress. In consistent with the above findings, Chen (2004), Jensen and Meckling (1976), Myers (1977), Myers and Majluf (1984), Rajan Zingales (1995) and Titman and Wessels (1988) also found tangibility to be a significant influencer on leverage.

The SIZE is able to positively and significantly control for LEVERAGE: bigger firms can borrow at more favourable rates because they are perceived as less risky. Moreover, the economies of scale reached in case of debt issues by bigger firms by smoothing the amount of fix costs over a larger mass, represent a considerable cost advantage that can redirect financing choices. Once again this outcome is consistent with Antoniou et al. (2008), Booth et al. (2001), Chen (2004), Deesomsak et al. (2004), Nor et al. (2011), Pandey et al. (2001), Prasad et al. (2001), Rajan and Zingales (1995), Sheikh and Wang (2011) and Wiwattanakantang (1999). Dessi and Robertson (2003) that, using an UK sample in their static panel regression, found a positive and significant coefficient (0.25). The positive relationship indicates that larger companies have a higher amount of leverage than smaller companies because they generally have smaller agency costs of debt, less failure, lower bankruptcy costs, less volatile cash flow, are more diversified and have easier access to bank credit.

Furthermore, the least influential variables is LIQ as showed in table 4.4. LIQ has a significant negative relationship in model 1 while in the model 2 is significant at 10% confidence level while model 3 is not significant to leverage for REC firms in China. This shows that companies in REC companies in China have a considerable amount of liquidity, in which they can use to finance their new investment instead of raising external finance, and is consistent with the predictions of pecking order theory

and consistent with the study of Deesomsak et al. (2004), Mazur (2007) and Viviani (2008).

Furthermore, table 4.4 shows that the relationship between TANG and leverage is positive and significant. This indicates that companies required to provide collateral to the lenders to issue debt and supports the trade-off theory (Myers and Majluf, 1984). NDTS and leverage is the most influential variable throughout the sample period and significant. This shows that the companies with higher non-debt tax shields tend to use a higher amount of leverage and this supports Bradley et al. (1984). Furthermore, liquidity is negatively significant, which supports pecking order theory. PROF is significant and negatively related to leverage while SIZE is significant and positively related to leverage. This shows that PROF and SIZE plays significant role in determining the capital structure among REC companies in China.

CHAPTER 5

CONCLUSION

5.1 Introduction

In this chapter, a summary of the findings is forwarded. It is then followed by implications of the study. A discussion on the limitations and recommendation for future research conclude the chapter.

5.2 Summary of findings

The main objective of this study is to examine capital structure determinants of real estate companies in China, by providing a wider sense of knowledge on how the REC in this country determine their capital structure. The study improves upon the existing models from the literature of capital structure in various ways among others are; the study presented new empirical findings on determinant of capital structure among Chinese REC for the period between 2005 to 2012.

The findings clearly confirm for what has been found in other studies but in different scope. The result shows that the most powerful factor in affecting LEVERAGE decisions in all the three models are non-debt tax shields, profitability, tangibility and size of the companies. The result shows that non-debt tax shields is positively related to total debt for Chinese REC companies. Profitability is negatively significant to leverage in both models and in line with the pecking order theory. The positive relationship between tangibility and leverage gives support to the trade-off theory which postulates that tangible assets act as collateral and provide security to lenders in the event of financial distress. The size of REC companies is positively and significantly control for

leverage, bigger firms can borrow at more favourable rates because they are perceived as less risky.

The results shows that REC companies are required to provide more collateral to the lenders to issue debt after the crisis and supports the trade-off theory (Myers and Majluf, 1984).The findings also indicates that, the companies with higher non-debt tax shields tend to use a higher amount of leverage and this supports Bradley et al. (1984). Furthermore, the role of liquidity in determining capital structure among REC companies in China significantly decreased. Finally, the findings show that profitability and size of the REC companies plays significant role in determining the capital structure in China.

5.3 Limitation of the study

Several limitations were met in conducting this research. The first limitation is time constrained. This study is conducted within a three-month period, which is not enough to give a more in depth analysis. The second limitation of this study is that the samples only focused on the REC sector, which are listed on Shanghai Stock Exchange and Shenzen Stock Exchange. In fact, there are many other sectors; therefore, the results do not represent the other sectors in China. In order to get more convincing and precise result a larger sample should be used.

5.4 Research Implications

Generally, the results of this study may provide implications for firm managers and investors. This study is recommending managers of the firm not to consider only

firms specific factors when making financing decisions, but also consider the economic condition of the country. According to the result of this study, REC companies in China rely more on debt after the crisis as such managers of the firm needs to change their financing policy according to the economic changes.

For instance, if the companies suffer losses and have no taxable income, they should not concentrate having a high non-debt tax shields since tax is no longer their goal. As a result, managers of the firm should concentrate more on internal source of financing. Furthermore, this study recommends that the managers need to issue equity when the market is efficient, which gives the managers the opportunity to time the stock. On the other hand, investors can benefit the knowledge provided in this study. Investors should consider the firms' characteristics and other important factors related capital structure when making financing decision.

5.5 Future research

This study lays some groundwork to investigate the determinants of capital structure of REC in China. Recommendations for future research are:

1. This study only concentrated on Chinese REC, a further investigation on larger sectors would provide more convincing and precise result.
2. Further work is required to develop new hypothesis especially on the macroeconomic variables for instance, share price, bond market development and stock market development can be taken into consideration as they are factors that determine capital structure.

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