



CAPITAL STRUCTURE IN CHINA: FIRM-SPECIFIC  
FACTORS, CORPORATE GOVERNANCE AND  
INSTITUTIONAL FACTORS

BY

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## ABSTRACT

Firms operating in a transition economy like China possess institutional characteristics that fundamentally differ from those of developed economies, it stands to reason: do existing theories on capital structure also apply to China in the context of its transition economy? Western capital structure theories such as trade-off theory, pecking order theory, and agency theory are all found to be able to explain the capital structure decision in Chinese listed firms, however, none of these theories suggests a prevailing explanation power. In addition, past studies have not accounted for cross-provincial differences in Chinese institutional settings and resolving multicollinearity issues with regards to corporate governance variables. This study seeks to address such concerns by analysing capital structure in China via firm-specific determinants, aggregate corporate governance index and other institutional factors all in one dynamic panel regression model namely Generalized Method of Moments (GMM). A result of this endeavour is that Trade-off theory may serve to best explain capital structure in China but only when having accounted for institutional settings in China. This study further found that shareholder theory may better explain the corporate governance issue in China. Moreover, government intervention as the variable represents institutional settings, is reported to be positively related to leverage, indicating that institution has strong influence on firms' leverage as well. The findings of this study imply that, to instil better financial discipline among Chinese listed firms, regulators should focus reforms on Chinese stock and bond markets, which would optimise debt-equity mix. As a result, the implication on the industries is that well-targeted reforms would impose more accountability on managers in corporate financing choice as managers must decide debt-equity mixes based on market-valued costs, free from state intervention. The unique contribution of this study to the debate is empirical framework utilised, which incorporates institutional variables and governance factors (through the use of aggregated variables constructed by using Principal Component Analysis) into the analysis together with firm-specific variables. This improvisation advances the study a step further as econometric-related obstacles when examining governance factors are minimised as multicollinearity risk is reduced. Furthermore, the framework also utilise provincial-level data on institutional variables, which allows for distinction of the effect of each institutional factors on capital structure as there are no variations in accounting, taxation and bankruptcy regulations across provinces within China.

## خلاصة البحث

تمتلك الشركات العاملة في اقتصاد انتقالي مثل الصين خصائص مؤسسية تختلف اختلافاً جوهرياً عن نظيراتها في الاقتصادات المتقدمة، وهي منطقية: هل تنطبق النظريات الحالية على هيكل رأس المال أيضاً على الصين في سياق اقتصادها الانتقالي؟ لقد تم العثور على نظريات بنية رأس المال الغربية مثل نظرية المفاضلة، ونظرية النظام، ونظرية الوكالة لتكون قادرة على شرح قرار هيكل رأس المال في الشركات الصينية المدرجة. ومع ذلك، فإن أياً من هذه النظريات تشير إلى وجود قوة تفسير سائدة. بالإضافة إلى ذلك، لم تكن الدراسات السابقة مسؤولة عن الاختلافات بين المقاطعات في الإعدادات المؤسسية الصينية وحل مسائل الترابط المتعدد فيما يتعلق بمتغيرات حوكمة الشركات. تسعى هذه الدراسة لمعالجة هذه المخاوف من خلال تحليل هيكل رأس المال في الصين من خلال المحددات المحددة للشركة، ومؤشر حوكمة الشركات الإجمالي والعوامل المؤسسية الأخرى جميعها في نموذج واحد للانحدار الديناميكي للأحزمة وهي طريقة الحزم المعممة (GMM) نتيجة لهذا المسعى هو أن نظرية المفاضلة قد تفيد في تفسير هيكل رأس المال في الصين على أفضل وجه، ولكن فقط عندما يكون السبب في وجود إعدادات مؤسسية في الصين. وجدت هذه الدراسة كذلك أن نظرية المساهمين قد توضح بشكل أفضل قضية حوكمة الشركات في الصين. وعلاوة على ذلك، فإن التدخل الحكومي باعتباره المتغير يمثل إعدادات مؤسسية، ورد أنه يرتبط ارتباطاً إيجابياً بالرافعة المالية، مشيراً إلى أن للمؤسسة تأثيراً قوياً على نفوذ الشركات أيضاً. وتشير نتائج هذه الدراسة إلى أنه من أجل غرس الانضباط المالي الأفضل بين الشركات الصينية المدرجة، يجب على الهيئات التنظيمية أن تركز على الإصلاحات في أسواق الأسهم والسندات الصينية، الأمر الذي من شأنه أن يعمل على تحسين مزيج الديون - الأسهم. ونتيجة لذلك، فإن الآثار المترتبة على الصناعات هي أن الإصلاحات ذات الاستهداف الجيد من شأنها أن تفرض المزيد من المساءلة على المديرين في اختيار تمويل الشركات، حيث يتعين على المديرين أن يقرروا خلط الديون - الأسهم على أساس تكاليف ذات قيمة سوقية، خالية من تدخل الدولة. إن المساهمة الفريدة لهذه الدراسة في المناقشة هي إطار تجريبي يستخدم، والذي يتضمن المتغيرات المؤسسية وعوامل الحوكمة (من خلال استخدام المتغيرات المجمعة التي تم إنشاؤها باستخدام تحليل المكون الرئيسي) في التحليل مع المتغيرات الخاصة بالشركة. ويؤدي هذا الاحتمال إلى تقدم الدراسة خطوة أخرى حيث يتم الحد من العقبات المرتبطة بالاقتصاد القياسي عند فحص عوامل الحوكمة حيث يتم تقليل مخاطر التضاعف المتعدد. وعلاوة على ذلك، يستخدم الإطار أيضاً بيانات على مستوى المحافظات بشأن المتغيرات المؤسسية، مما يسمح بتمييز تأثير كل من العوامل المؤسسية على هيكل رأس المال حيث لا توجد اختلافات في قواعد المحاسبة والضوابط وقانون الإفلاس عبر المقاطعات داخل الصين.

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## DECLARATION

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## LIST OF ABBREVIATIONS

AGE	Firm age
CBRC	Chinese Banking Regulatory Commission
CEO	Chief Executive Officer
CG	Corporate governance
CGI	Corporate Governance Index
CPC	Communist Party of China
CSMAR	China Stock Market and Accounting Research
CSRC	China Securities Regulation Commission
DEP	Depreciation
EBIT	Earnings before interest and tax
EBITDA	Earnings before interest, tax and depreciation
FA	Fixed assets
FE	Fixed Effects Model
FIN	Development of financial system
GDP	Gross Domestic Product
GM	General Manager
GMM	Generalized Method of Moments
GOV	Degree of government intervention
GROW	Growth opportunity
INV	Inventory
IPO	Initial Public Offering
LEGAL	Effectiveness of legal framework
LL	Long-term leverage
NDTS	Non-debt tax shields
NERI	National Economic Research Institute
OECD	Organization for Economic Co-operation and Development
PBC	The People's Bank of China
PCA	Principal Component Analysis
POLS	Pooled Ordinary Least Squares Model
PROF	Profitability
R&D	Research and Development
RE	Random Effects Model
SHSE	Shanghai Stock Exchange
SIZE	Firm size
SME	Small and Medium Sized Enterprises
SOBs	State-owned Banks
SOEs	State-owned Enterprises
SZSE	Shenzhen Stock Exchange
TA	Total assets
TANG	Asset tangibility
TL	Total leverage
VIF	Variance Inflation Factor

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 BACKGROUND TO STUDY**

Capital structure is the mixture of debt and equity used to finance a firm's business activities (Myers, 1994). It is an important decision for the firm as the optimal choice of debt and equity mix could minimise the firm's financing costs and thus maximise the firm's value. The debate on capital structure in modern finance theories began with the publication of Modigliani and Miller (1958) which concluded that, in a perfect market, choices of capital structure is insignificant to the firm's value. Since then, various theoretical models have been advanced to solve the capital structure puzzle by relaxing the perfect market assumption. Later works on the subject include trade-off theory (Modigliani & Miller, 1963; Miller, 1977; and DeAngelo & Masulis, 1980), pecking order theory (Myers & Majluf, 1984; Myers, 1984; Ross, 1977; and Narayanan, 1988), and signalling theory (Ross, 1977; and Leland and Pyle, 1977). However, as prolific this debate has been, most of these models are based on observations of firms in developed economies.

In recent years, the increasing economic integration of transition countries into the global economy has resulted in a growing desire to investigate the financial behaviour of firms operating in transition economies. According to Feige (1994), a transition economy is an economy that has been experiencing economic liberalization, moving from a centrally planned economy to a market economy. Through the transition, trade barriers are removed, state-owned enterprises are privatised, and a financial sector is established for macroeconomic stabilization. In discussing the factors that influence

corporate finance decisions in transition economies, the relevance of institutional settings seems to have been a common theme. Porta et al. (1998), Demetriades and Law (2006), and Andrianova, Demetriades, and Shortland (2008) are examples of empirical works that argue for the importance of institutional settings in financial development. In general, these works define institutional settings as being the collection of policies, laws, and regulations enforced by institutions that relates to the development of financial systems as well as the level or quality of enforcement. China, as a transition economy, has an evolving institutional setting which can be seen from its history beginning in 1949.

Since 1949, China has been under the administration of the Communist Party of China which has established national economic institutions and corporate bodies based on socialist ideologies. In particular, Chinese economic institutions, such as banks and businesses, have been mostly state-owned, whilst their counterparts in developed economies have been often privately-owned and profit-oriented (Lo & Smyth, 2005). However, when compared with other transition economies such as the former states of the Union of Soviet Socialist Republics, China has remained until today under the governance of the Communist Party of China. Thus, socialist characteristics of economic institutions such as state ownership and intervention remains, despite reforms carried out to transform them into profit-generating organisations. However, even with gradual reforms, changes have taken place in the capital structure of Chinese listed firms.

Before 1990, the capital structure of Chinese state-owned enterprises was virtually equity-based (Lo & Smyth, 2005). From 1949 until 1978, there was only bank in China, the People's Bank of China, which lend to the state-owned enterprises, but the loans were not based on market consideration as the Chinese government owned the

bank. Therefore, even with loans, the transfer of funds from the bank to the enterprises were little more than capital injection into the enterprises from the Chinese government. In the 1980s, the People's Bank of China became the central bank and more banks were created to fund the enterprises. However, the newly-created banks did not operate their lending operations based on market considerations either. In addition, the 1980s reforms on enterprises were designed to induce profit-seeking behaviour by introducing decentralisation and profit-sharing agreements between the Chinese government and the enterprises. On the other hand, the enterprises, despite having been made to be accountable for their profit and losses, were not pressured into managing their finances from the banks. The Chinese government still owned all banks and enterprises, and in essence, they borne the profit and losses. Therefore, despite the reforms and the loans granted to the enterprises by the newly-created banks, the government-bank-enterprise ownership triangle meant that capital structure remained virtually equity-based. In corporate governance terms, the Chinese government was the sole controller of the enterprises and their financing.

After the 1990, China established its stock markets in Shanghai and Shenzhen. This marks the beginning of the Era of Corporatisation. Corporatisation, in the context of China, refers to the conversion of most state-owned enterprises into listed corporations, which means private individuals may own shares in these newly-formed corporations. However, Chinese securities laws prevent private shareholders, institutional or individual, from controlling the affairs of Chinese listed corporations. The investing public were entitled to dividends from their investments, but control over corporate affairs, in this case capital structure, was still in the hands of the Chinese government. Essentially, the investing public or market for corporate control did not exist in China until 2005 when a major share reform, also known as the Split Share



Reform, has granted more control to private shareholders (Lo & Smyth, 2005). In effect, the 2005 Split Share Reform is a corporate governance reform as it marks the beginning of a shift in corporate control from the hands of the Chinese government gradually to the hands of private shareholders. In addition, between 1990 and 2005, Chinese commercial banks were still state-owned and, although they operated with market considerations, concentrated state ownership has resulted in commercial banks operating much like policy banks, which lends, not for profit-seeking motives, but to support national development. In 2005, another banking reform began whereby state shareholdings in commercial banks were reduced but minimally and foreign banks were allowed to enter the Chinese banking market. Basically, after 2005, Chinese capital structure began to resemble more competitive behaviour in corporate financing decision as private owners instil more financial discipline in Chinese listed firms and the Chinese banking sector became more competitive, leverage incurred by Chinese listed firms have been gradually increasing.

Whilst other transition economies such as the former Soviet Union and former Communist bloc countries had experienced aggressive economic transitions since the fall of communism in Europe, China has adopted a gradualist approach towards economic transitions which started in 1978. The seminal work of Modigliani and Miller (1958) produced a capital structure model that is based on assumptions about the nature of managerial capitalism, governance mechanisms, financial institutions, and capital markets in developed economies. While some of these settings have been present in China since 1990, others are not. The growing importance of China in global marketplace, contrasting with the limited knowledge of how China's distinctive institutional reform affects the firms' capital structure behaviour during the economic transition, has made China the focus of this study.

## **1.2 RESEARCH PROBLEM**

The theories of capital structure have evolved against a setting of capitalist institutions, and their development has been greatly influenced by the nature of institutional settings of the developed economies. Firms in transition economies possess institutional characteristics that fundamentally differ from those of developed economies. In order to enhance the understanding of capital structure issue, a relevant question to ask is: do the doctrines of Western theories of capital structure also hold in the context of transition economies? Thus, for one to investigate the capital structure in transition economies, further effort is required to account for the influence of institutional effects.

In this regard, some studies found that firm's leverage is not only affected by the firm-specific characteristics but also affected by the country of incorporation (Rajan & Zingales, 1995; Demirguc-Kunt & Maksimovic, 1999; Booth et al., 2001; Claessens et al., 2001; Bancel & Mittoo, 2004). Specifically, they emphasized on the significance of institutional setting in fundamental capital structure determination (De Miguel & Pindado, 2001; Faria & Mauro, 2009). Although the importance of institutional settings has been addressed in many studies, these studies mostly are cross-countries studies. At best, they found that variations in leverage among different countries can be attributed to their different institutional settings. It is still not very clear about the actual impact of institutional settings on capital structure, or put it in a different way, we still have limited knowledge on how exactly the institutional setting of a particular country in transition affects firms' capital structure in that setting. And the fact that there may be considerable disparities in institutional settings of different regions within one country has been largely ignored by many researchers, and thus remaining as an underexplored issue in this line of research. Those regional differences in institutional development

within one country could affect capital structure in the similar way that cross-countries institutional differences do.

Besides examining the effect of institutional settings on capital structure, some other researchers have tried to explore the topic of capital structure from corporate governance perspective (Boyd, 1995; Berger et al., 1997; Wen et al., 2002; Fosberg, 2004; Abor, 2007; Abor & Biekpe, 2007; Saad, 2010; and Chang, Chen & Liao, 2014). Resting on the theory of agency cost and information asymmetry, they mostly examined the relationship between capital structure and certain internal corporate governance mechanisms such as board size, CEO duality, managerial compensation, and ownership concentration. Despite their effort, the reported findings are inconclusive and self-contradictory. Drawing on the new institutional economics, corporate governance can be viewed as a form of institutional design at the firm level. Hence, the overall quality of corporate governance can be viewed as an institutional factor at firm level that is expected to have direct impact on capital structure. Moreover, it is argued that the development of corporate governance is embedded with the development of overall institutional environment of the country, thus an indirect impact of institutional settings on capital structure through its effect on corporate governance is also expected. Research on this subject still remains unexplored.

This research focuses on studying capital structure in China. As a transition economy, it has a unique institutional setting that differs from developed and other developing economies. What makes it more interesting to investigate the impact of institutional settings on capital structure in China is that China is a large and diverse country with significant disparities across different provinces. Particularly between the coastal and inland regions, the economic and financial market development is significantly unbalanced. The institutional reform in China during the past few decades

have given rise to strong local governments, which often act independently of the central government regarding economic matters (Démurger et al., 2002). The regional disparities in China are analogous to country variations within the European Union or in Southeast Asia. Therefore, there is a need to call for an investigation on the impact of regional disparities in institutional development in China on capital structure.

Empirical studies on capital structure of listed firms in China mainly focused on whether trade-off theory or pecking order theory can better explain the case of China. Some researchers shared the expectation that the institutional arrangement of Chinese listed firms may have an impact on the capital structures. The implication of their studies are in line with the argument put forward before. When speaking of the impact of institutional settings and corporate governance on capital structure, they mostly speak of the state ownership of Chinese listed firms. These studies have fundamentally undermined the impact of overall institutional settings and corporate governance as well as their evolutionary process on capital structure, not even mention the impact of regional disparities in institutional development within China. This study, therefore serves to fill this gap in order to provide more insightful understanding of capital structure in transition economies.

In short, past studies have not accounted for cross-provincial differences in Chinese institutional settings and resolving multicollinearity issues with regards to corporate governance variables. For the purpose of examining the explanatory power of the aforementioned capital structure theories as well as the effects of institutional settings on capital structure, this study seeks to address such concerns by analysing capital structure in China via firm-specific determinants, aggregate corporate governance index constructed through the use of principal component analysis (PCA)

and other institutional factors. The estimated results are derived by using a dynamic panel regression model namely Generalized Method of Moments (GMM).

### **1.3 RESEARCH OBJECTIVES**

The motivation behind this study is to explain how institutional, governance and firm-specific variables interplay among themselves to affect capital structure choice in China as past studies have mainly studied the effects of each on capital structure choice separately. Based on the theoretical predictions and empirical evidence offered by past work on capital structure in China as well as Chinese institutional and corporate governance reforms, this research aims to examine the effects of firm-level, corporate governance, and institutional factors on capital structure in China. Each of the three factors consists of several sub-factors.

Firm-level factors consist of non-debt tax shields, firm size, profitability, asset tangibility, earnings volatility, growth opportunity, and firm age. Chinese corporate governance in this research is treated as a single, aggregate variable representing the state of corporate governance in China as a whole. However, this aggregate variable is constructed through combining the results of past measures for many governance-related variables in China. The governance-related variables are: board-related variables; ownership-related variables; executive compensation; market for corporate control; and financial transparency and legal protection.

Chinese institutional factors that consists of: the effectiveness of the Chinese legal system in law enforcement and creditor protection; the development of the Chinese financial system; and the degree of intervention from the Chinese government in the corporate financing decisions of Chinese listed companies.

Based on the aforementioned variables, the following are the objectives of this research:

1. To investigate whether Chinese listed firms optimise their capital structure towards the targeted one;
2. To examine the impact of Chinese firm-specific determinants on the capital structure of Chinese listed firms;
3. To explore the impact of Chinese corporate governance on the capital structure of Chinese listed firms;
4. To study the impact of Chinese institutional factors on the capital structure of Chinese listed firms; and
5. To examine the effect of interaction between corporate governance and institutional settings on capital structure of Chinese listed firms.

#### **1.4 RESEARCH QUESTIONS**

The central question to be answered by this research is: what are the factors that affect capital structure decisions of Chinese listed firms during the corporatisation stage of institutional reform in China? The sub-questions are as follows:

1. Have capital structure of Chinese listed firms been adjusting towards their optimal capital structure? And how far is the gap between the actual capital structure of Chinese listed firms and their optimal capital structure?
2. How do Chinese firm-specific factors affect capital structure decisions of Chinese listed firms?
3. How does Chinese corporate governance affect capital structure decisions of Chinese listed firms?

4. How do Chinese institutional factors affect capital structure decisions of Chinese listed firms?
5. How do Chinese institutional factors affect capital structure decisions of Chinese listed firms through the effect of their interaction with Chinese corporate governance?

## **1.5 SIGNIFICANCE OF STUDY**

This research intends upon contributing to the existing body of knowledge concerning capital structure and corporate financing in China. Past works on capital structure, when compared with this research, have mainly focused on the effects of firm-specific factors on leverage, whilst institutional and corporate governance factors have been discussed and tested against real world data but results have been inconclusive.

This research hypothesises that both institutional and corporate governance factors have significant effects on leverage in China, but that, at the same time, Chinese institutional factors also has a significant positive effect on Chinese corporate governance factor. Therefore the significance of this research is the understanding of the relationship between institutional factor and capital structure and how institutional factors affect capital structure, directly through the influence of developments of the financial system and the national legal system, and indirectly, through its interaction effects with corporate governance. In addition, because of the numerous provinces in China, each with local governments of its own and thus the task of maintaining institutions lies with them, the research also contributes to the understanding of the gap between provinces in terms of institutional factors affecting capital structure of Chinese listed firms.

Overall, the research benefits both practitioners and academicians alike. Practitioners such as firm managers, policy-makers, fund managers, and investors will be able to assess the financial performance of Chinese listed firms and the institutional atmosphere that surrounds them. From the angle of this research, the leverage of Chinese listed firms is primarily determined by the institutional surroundings of their provinces. This helps to build a complete picture into the behaviour of both leverage and equity of Chinese listed firms so that policy-makers, managers, and investors may better forecasts the future financial performance of Chinese listed firms.

As for academicians researching capital structure behaviour, past works on capital structure have mainly focused on firm-specific factors, and when it comes to institutional and corporate governance factors, often they have been assessed against cross-sectional data (i.e. by firms and countries but not across time). Thus this research contributes to the understanding of capital structure by providing an analysis on capital structure from the view of the gradual transition in the economic setups of a transition economy.

## **1.6 SCOPE OF STUDY**

The empirical analysis of this research is focused on the period of 1999 until 2014. Data concerning capital structure in China from 1949 until 1990 are non-existent. From 1990 until 1995, data on capital structure exists but the quality of data is low that they do not suffice for the analysis.

To measure the capital structure of each Chinese listed firm, this research utilises the ratios of Total Debt to Equity (TL) and Total Long-term Debt to Equity (LL) at book value as proxy for the dependent variable because Total Debt covers both short-term