
DEBT COVENANTS AND CREDIT SPREAD VALUATION: THE SPECIAL CASE OF CHINESE GLOBAL BONDS

By

Chang Tat Sean BCom, M.Fin

Macquarie Graduate School of Management

Macquarie University

13 August 2013

This thesis is presented in partial fulfillment of the
requirements for the degree of Doctor of Business
Administration

Table Of Contents

List of Exhibits	6
Abstract.....	7
Certification.....	8
Chapter 1 – Introduction.....	9
1.1 Overview Of The Thesis.....	9
1.2 Definitions Of Key Terms.....	11
1.3 Overview Of The Chinese Global Bond Market.....	15
1.3.1 Limitations In The Literature Examined	22
1.4 Description Of The Problem.....	25
1.4.1 The Proposed Model Of Bond Covenant Risk Pricing	27
Chart 1 – <i>Thesis Model</i>	27
1.5 Research Methodology	31
1.6 Assumptions And Limitations Of The Study	32
1.6.1 Assumptions.....	33
1.6.2 Limitations.....	33
1.7 Overview Of The Thesis.....	36
Chapter 2 – Literature Review	38
2.1 Protective Covenants	40
2.1.1 General Description Of The Role Of Covenants	47
2.1.2 Overview Of Debt Covenant Literature In Emerging Markets	52
2.2 A Key Overview Of Debt Covenants In HK/China.....	55
Table 2 – <i>Attributes of the Chinese Global Bonds</i>.....	56
2.3 General Concepts Of Debt Covenant And Their Key Risk Pricing Factors.....	70
2.3.1 Information Asymmetry.....	70
2.3.2 Agency Theory.....	78
2.3.3 Financial Distress.....	88
2.3.4 Bankruptcy Costs	98
2.4 Other Security Specific Risk Factors Of Spread Valuation	110

2.4.1 Bond Indenture.....	111
2.4.2 Collateral.....	113
2.4.3 Seniority.....	114
2.4.4 Credit Rating	115
2.5 External Risk Factors Of Spread Valuation - Country Risk.....	116
2.5.1 Country Risk - Ownership Structure.....	117
2.5.2 Country Risk - Management Behavior.....	118
2.5.3 Country Risk - Country Policy.....	119
2.5.4 Country Risk - Country Fundamental.....	122
2.5.5 External Risk Factors Of Spread Valuation - Transaction Costs.....	126
2.5.6 External Risk Factors Of Spread Valuation - Tax Implications	127
2.6 Analysts and Valuation.....	131
2.6.1 Configurality And The Interactive Effect.....	132
2.6.2 Self-Insight And The Human Processing Effect	137
2.6.3 Spread Valuation Block.....	143
2.7 Summary Of Literature Review	153
Chapter 3 Methodology	156
3.1 Introduction	156
3.2 Research Question	157
How do bond covenants affect Chinese global credit valuations?.....	157
3.2.1 Theoretical Background.....	158
3.2.2 The Determinants Of Debt Valuation – Independent Variables	158
3.2.3 Manifestations Of Debt Valuation – The Dependent Variable	161
3.2.4 Detailed Research Questions And Hypothesis	161
3.2.5 Context and Richness	163
3.3 Research Methods.....	164
3.3.1 Research Methods Previously Adopted.....	164
3.3.2 The Rationale For A Mixed Methods Approach.....	165
3.3.3 Experimental Method And Analysis.....	167
3.3.4 In-Depth Interview Method And Analysis	172
3.4 Combining Experimental And Interview Methods	181
3.4.1 The Unit Of Analysis – Credit Analysts.....	181

3.4.2 The Function Of Credit Analysts	183
3.4.3 Credit Analysts' Experience And Judgment.....	184
3.5 Implementation Of Research	187
3.5.1 Data Base And Sample Selection.....	188
3.5.2 Experimental Process.....	188
3.5.3 In-Depth Interview	195
Chapter 4 – Results and Analysis	196
4.1 Chapter Overview	196
4.2 Experiment Results.....	196
4.2.1 Description Of Respondents.....	196
4.2.2 Experimental Validity.....	197
4.2.3 Factor Weighting.....	199
4.2.4 Interactive Effects.....	206
4.2.5 Self-Insight.....	207
4.3 Interview Data.....	208
4.3.1 Interview Summary	208
4.3.2 Protection Against Information Asymmetry And Impact On Valuation.....	210
4.3.3 Protection Against Agency Problems And Impact On Valuation.....	211
4.3.4 Protection Against Financial Distress And Impact On Valuation.....	213
4.3.5 Protection Against Bankruptcy And Impact On Valuation	213
4.3.6 Covenants In The Context Of The Valuation Process	214
4.3.7 Chinese Contextual Factors Impacting Perceived Covenant Value	216
4.3.8 Due Diligence And Configural Decision Making.....	225
4.3.9 Restriction And Flexibility Tradeoffs.....	226
4.3.10 Collateral, Seniority, Credit Rating.....	227
4.4 Integration Of Mixed Methods Data.....	230
4.4.1 Self-Insight.....	230
4.4.2 Information Asymmetry.....	231
4.4.3 Agency Problem.....	231
4.4.4 Financial Distress.....	232
4.4.5 Bankruptcy	232
Chapter 5 – Conclusions	234

5.1 Introduction and Chapter Overview.....	234
5.2 Collaboration of Findings	234
5.2.1 Bond Covenants	235
5.2.2 Information Asymmetry.....	236
5.2.3 Agency Problem.....	238
5.2.4 Financial Distress.....	241
5.2.5 Bankruptcy	242
5.3 Research Analyst’s Credit Evaluation Process	244
5.3.1 Configural Cue Processing.....	244
5.3.2 Self-Insight.....	246
5.4 Theoretical Implications – The Covenant Valuation Model	247
5.5 Practical Implications.....	249
5.5.1 Limitations.....	251
5.5.2 Further Examinations in The Chinese Credit Field.....	252
5.6 Conclusion	253
References.....	256
Appendices.....	293
1 The Analytical Framework Of Credit Analysts	293
2 Valuation Methodologies: Structural And Reduced Form Approaches	295
3 The Data Collection Instrument – Questionnaire.....	299
4 The Interview Protocol.....	305
5 Final Ethics Approval Letter	308

List of Exhibits

Charts

Chart 1 – Thesis Model

Chart 2 – Spread Valuation Block

Chart 3 – Rock Bottom Valuation Block

Chart 4 – Factor Weights Influence On Relative Value

Chart 5 – Weights Of Factors Influence On Perceived Risks

Chart 6 – Credit Analysis Framework

Tables

Table 1 – Key Literatures And Their Main Features

Table 2 – Attributes Of The Chinese Global Bonds

Table 3 – Common Bond Covenants

Table 4 – Sample Of Survey Case Scenario

Table 5 – Factor Weightings For Relative Value

Table 6 – Effect Sizes For Relative Value

Table 7 - Factor Weightings For Perceived Risk

Table 8 – Effect Sizes For Perceived Risk

Abstract

The research looks to enrich the existing covenant and bond literatures by studying the impact of bond covenants on Chinese global bond valuation and the self-insight of analysts.

Building on prior literatures, this thesis identifies four risk pricing factors that bond covenants protect against. They are information asymmetry, agency problems, financial distress and bankruptcy. These are tested using a mixed methods approach that incorporates surveys and interviews. Data is collected from bank and investment analysts representative of the market.

The results reveal important and statistically significant relationships between Chinese global bond valuation and the four risk pricing factors. The findings indicate that covenants have significant main and interactive effects on bond valuation. In particular, bankruptcy is identified as the most significant factor in main effects and two-factor interactive effects. This is followed by agency problems, financial distress and information asymmetry. Also of note is the greater effect size of two-factor interactive effects against three-factor interactive effects. Self-insight is measured using relative factor weights chosen by analysts in a subjective weight and analyst scores model. The results indicate that analysts have limited self-insight.

Overall, the research reveals that credit analysts consider bankruptcy the ultimate risk and the greatest threat to valuation, hence protection against it most important. Protection is beneficial up to a certain level, after which, it becomes overly restrictive and detrimental to valuation. A balanced approach to covenants must be established to prevent covenant protection overlap. Limited self-insight of analysts suggests clear investment guidelines may improve performance.

Certification

I certify that the work in this thesis entitled “Debt Covenants And Credit Spread Valuation: The Special Case Of Chinese Global Bonds” has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree to any university or institution other than Macquarie University.

I also certify that the thesis is an original piece of research and it has been written by me. Any help and assistance that I have received in my research work and the preparation of the thesis have been appropriately acknowledged.

In addition, I certify that all information sources and literature used are indicated in the thesis.

The research presented in this thesis was approved by Macquarie University Ethics Review Committee, reference number: 5201100522(D) on 23 June 2011.



Chang Tat Sean

March 2013

Chapter 1 – Introduction

1.1 Overview Of The Thesis

This research explores the links between bond covenants and credit spread. Bond covenants, written in the bond indenture, are agreements between the issuer and bondholders, requiring or forbidding certain actions by the issuer. It studies the relationship between Chinese global bond covenants and their credit spread, which is defined as the risk premium between the specified bond yield and a comparable U.S. Treasury yield.

Typically, bonds have risks that are commensurate with the risk level of issuers. Risks can be external or security specific. Whereas the company cannot control external risks, security specific risks are controllable. This research focuses on security specific risks. Security specific risks differentiate companies in similar fields and give a better valuation to the company with less security specific risks, everything else being equal. They are categorized into information asymmetry risks, agency problem risks, financial distress risks, and bankruptcy risks. Although the latter two can be subject to economic or industry changes, this study focuses on financial distress and bankruptcy risks arising from management decisions.

Bond covenants are attached to an issue and are designed to prevent or alleviate one of the four specific types of risks mentioned above. As empirical evidence shows, lower risk should lead to higher bond valuation. This is because a better

control of an issuer's risk through the attached bond covenants should subsequently improve the bond's valuation. Holding all other pricing factors constant, the inclusion of bond covenants with bond issues is expected to contribute significantly to higher valuations.

Credit analysis with bond covenants is a relatively new area, and only in recent years have qualitative approaches been incorporated into existing credit analysis techniques. However, few studies have explored the effectiveness and impact of the bond covenants in bond valuation. Moreover, bond literature focuses mainly on developed countries with the paucity of studies on the usefulness of bond covenants as a tool in bond valuation in China - a topic that demands further examination given the rising prominence of China in global financial markets. Responding to this lacuna, and using the vantage of analysts, this thesis builds on existing literature to construct a covenant risk pricing model that aims to add to existing knowledge about covenant effects on debt valuation.

Specifically, this thesis observes the impact of covenant protection against security specific risks of information asymmetry, agency problem, financial distress, and bankruptcy on bond valuation. It also explores how and why covenants influence debt valuation in terms of individual main effects and interactive effects. In an effort to provide greater insight into valuation, the thesis also looks at the effects of self-insight on valuation.

To accomplish these research objectives, the thesis first looks at the impact of individual risk factors on bond valuation and establishes an order corresponding to each one's importance to valuation. Secondly, the study examines the degree of configural processing of cues, or interactive effects of risk factors on bond

valuation. Thirdly, factorial experimentation and in-depth interviews are jointly used to observe the degree of self-insight possessed by research analysts. In sum, these areas of research aim to provide a deeper understanding of bond covenant effects on debt valuation thereby contributing to a better grasp of the impact of bond covenants in China's global bond market.

1.2 Definitions Of Key Terms

The thesis will set out to explore the impact of the four named risk pricing factors on debt valuation. Each factor is first defined in this section followed by additional discussions in Chapter 2 and Chapter 3.

1) Information Asymmetry – This refers to relevant information known to some but not all involved parties. In this thesis, it refers to information relevant to proper valuation known to company insiders but not bondholders.

According to Stigler (1961), information asymmetry could cause financial markets to become inefficient. In the event where not all participants have access to the information necessary for investment decision-making processes, an imbalance of power in transactions is created, which can sometimes skew the transactions. Stigler (1961) also observes that the degree of information asymmetry is closely connected to issues such as moral hazard and adverse selection. Therefore, bond covenants should always include terms to ensure effective information disclosure and communication by the firm's management, a measure that would lead to optimum financing via different types of capital. This would enable

corporate management to make favorable financing decisions thus limiting excessive leverage and borrowings and benefitting debt investors.

2) Agency Problem –This refers to difficulties arising when a principal hires an agent with conflicting interests, though the choice of agent should actually serve the principal's interest (Stiglitz, 1987).

The agency problem can be found in relationships between the firm's ultimate owners (firm's shareholders), firm management and its hired employees, equity investors, and debt investors. For instance, shareholders hire top corporate executives responsible for managing firms in order to meet their own objectives, such as firm performance, and, most importantly, to represent the equity investors' interests, which may not correspond exactly with debt investors' interests.

According to Stiglitz (1987), there are two main issues that arise from agency problems. The first problem involves conflicts among the various representatives of the principal, such as conflicts between the firm's ultimate owner and equity holders, or agents such as company executives. Conflicts induced by agency problems are extended to debt investors, given that they can be perceived as investors without veto power over the firm's management, and could easily be ignored by shareholders and top executives representing the firm. The second problem involves unreconciled risk tolerance of the principal and agent. The agent, such as a top range executive, could be replaced if it does not fulfill the best interest of the principal. This might also refer to shareholders and top executives, whose actions should benefit the equity investors, and not necessarily debt investors.

Drawing from the above, agency problems can induce unwanted aggressive management behavior if not treated properly. But at the same time, overly restricting activities to prevent agency problems can hinder firm growth. Either scenario can lead to an impact on valuation. The debt covenant structure can thus set a balance between a firm's agency problems and growth opportunities. The firm's credit risk premiums or credit spread should reflect the firm's management behavior and its participation in such risky investments.

3) Financial Distress - Corporate financial distress refers to a situation where promises to company creditors are either broken or honored with difficulty (Swanson et al., 2008). Financial distress might lead to stages preceding liquidation and insolvency and is usually accompanied by costs to corporate issuers that are known as the costs of financial distress.

Debt valuation should reflect the management's ability to control the firm's financial resources. With respect to financial distress, this means alternative ways of handling the firm's financial situation while avoiding cash flow difficulties or financial problems. This would ultimately define the firm's risk appetite and the firm's leverage level, which, jointly with the firm's ability to service debt through sustained profits, might determine the likelihood of the firm going into financial distress.

Financial distress in issuers can lead to financial liquidity problems that would reduce the management efficiency (Swanson et al., 2008). This is because the agent or managers responsible to shareholders might try to transfer value from creditors (bondholders) to shareholders by issuing more debts in order to

postpone bankruptcy at the expense of bondholders. The firm could sink into financial distress and in turn pressure debt holders, resulting in further conflict of interest between bondholders and shareholders. As a firm's liquidation value slips below its debt value, it is in the shareholder's interest to invest in projects that are risky but that might promise high return. This measure increases the probability of the firm's value to surmount debt. Risky projects are not in the interest of creditors, as they also increase the probability of the firm's value decreasing further, leaving them open to receive even less in lending coupon and bond principals when issuers are unable to meet their obligations. Since these risky projects do not necessarily have a positive net present value, additional costs may also result from having embarked on the project (Swanson et al., 2008).

4) Bankruptcy – Bankruptcy refers to an exchange offer for delayed interest, missed coupons and forgiven principals, maturity extension, debt equity swap, haircuts, and ultimately defaults from the bond investors' standpoint.

Schwartz (2005) describes bankruptcy as a state in which a bankrupt firm could become insolvent, whereby its debt loses value, as the firm cannot continue to operate. Bond creditors may file a bankruptcy petition against an issuer in an effort to recoup a portion of what they are owed or initiate a restructuring. Court proceeding is instructed to liquidate the insolvent issuer's assets and to allow the issuer relief from further liability.

5) Global Bond Markets – The global bond market can be classified into two markets, namely the national bond market or the international bond market. They are also referred to as the internal bond market or the external bond market.

However, the definitions of the two vary across countries (Fabozzi, 1989). A global bond is offered simultaneously in more than one bond market (Fabozzi, 1989).

To increase clarity, this thesis also uses the following nomenclature with respect to corporate credits and bond markets. Credits refer to loans and advances by financial institutions, liabilities and debts raised by corporations which are included in the broad money definition, or Chinese enterprise borrowings in overseas capital markets (Hunt & Terry, 1993). The credit debt market, also known as the non-government bond market, is one of the two main segments of the fixed interest market (Hunt & Terry, 1993).

1.3 Overview Of The Chinese Global Bond Market

This section provides an overview of the Chinese global bond market and its recent developments, where Chinese global bonds refer to USD bonds issued by Chinese companies outside of the U.S. More particularly, it sets out the characteristics of China debt markets and their importance as a fund raising platform and examines certain problems currently defining the Chinese global bond market.

In accordance with this section's goals, it is useful to refer to a survey by Reuters and Pacific Prospect of 120 senior and experienced investors across Asia (Crooke, 2007). The results identified the challenges of investing in new debt asset classes in the Asia region, including the liquidity of selling and buying Asian debt instruments, transparency of debt markets, and also the accuracy or

availability of market-to-market pricing valuations. According to Crooke (2007), corporate debt securities were among the most frequently traded securities, just after convertible bonds, mortgage backed securities, and collateral bond obligation instruments.

Approximately 66% of the respondent pool indicated that asset classes were the most difficult to price due to infrequent and/or incorrect evaluations. One third commented on the lack of price information when reviewing these products. Twelve and half percent stated that China, in its capacity as an emerging market, is faced with illiquidity matters. On the whole, these findings show that investors require access to more reliable and transparent sources of information on these asset classes.

Debt issuance has been playing a more prominent role in the rapidly developing China financing market. According to representative bond indices, such as J.P. Morgan Asia Credit Indices (JPACI), the Chinese global debt market has grown rapidly in recent years. From being practically non-existent in the late 1990s, the total face value of China's global debt market, excluding government deals, has since exceeded \$43 billion in February 2012.

The rapid growth of credit could lead to events such as changes in the real economy, an increase in the scale of financial management by non-finance corporations, and the establishment of new regulatory frameworks (Hicks & Wheller, 1990; Hunt & Terry, 1993).

The combined volume of transactions in the China capital markets including interbank lending, borrowing, repos and commercial papers exceeded RMB 7.1 trillion in 2008 (CITIC ABMI, 2009). Tremendous economic development is propelling the growing demand for profit-driven funds. Lending and borrowing activities are continuing to grow significantly, not least by circumventing banking laws and authorities that impose caps and controls over certain banking areas.

Although the valuation of debt instruments is not a new topic to finance, debt instruments have become more widely discussed only very recently and mainly owing to the rising interest in the credit debt market. In particular, the Chinese global credit market has attracted tremendous investment interest, shown not only by local investment players, but also by global investors with easy access and minimal local policy constraints as in domestic debt markets.

Nonetheless, the Chinese global bond market continues to be tightly monitored. Permission to issue was previously the responsibility of the NDRC (National Development and Reform Commission), which was considered stringent in its willingness to approve issues. Subsequent hand-over of responsibility to the China Securities Regulatory Commission (CSRC) in 2007 was intended to provide clear and transparent rules to bond syndicate and issuers. However, trading remains less than efficient and/or inactive, and so bond prices in China cannot be understood as accurately reflective of issuer assets and financial status.

Options may also have an effect on the pricing of bonds in China, making determination of a fair value even less accurate. The presence of callable features, for instance, may cap the bond price if close to the strike price. It is not uncommon for high yield bonds to carry covenants that have options embedded in them, such as change of control covenants.

Covenants play a very important role for issuers who may experience difficulty borrowing from the broader market due to uncertainty in sub-investment grade bonds in developing markets. A comprehensive set of covenants could assure the investor of the bond's valuation worth and enable sale to large investors, i.e. institution players, who otherwise might not have considered it. Since the inception of the high yield, sub-investment grade bond market, international standards in bond covenants have been established and are increasingly accepted as the standard in the Chinese global bond markets.

However, according to Moody's Credit Rating Agency, China's sovereign risk rating in 2012 was at and is subject to review for further upgrade to Aa2 and above, based on its huge accumulation of foreign exchange reserves and capital account surplus from external foreign capital inflows. For any Chinese enterprise with superior stand-alone creditability, the credit rating could go as high as Aa3. According to Moody's implied methodology, in some cases the credit rating of corporate issuers with strong external sources of funding and ownership could breach the sovereign ceiling of Aa3. This could result in corporates having lower risk premiums and borrowing costs either by raising debt through global credit markets or by financing through bank loans and borrowings.

The China capital market concentrates on equity financing. This is evident from the market capitalization of China equity markets compared with China corporate bond markets. Although the Chinese global bond market is among the relatively more developed markets, demand is low compared to equity markets.

Li, Yue and Zhao (2006) state that underdevelopment of China's capital market and insufficient protection of investors could influence firm capital structure. They also observe that firm valuations would depend on debt borrowing behavior not on equity when lending and borrowing activities are still on an upward trajectory.

In the event that the debt market continues to grow in conjunction with sovereign debt markets, the investor would pay attention to the corporate debt market on creation of certain benchmarks for price valuation comparison. This could drive more development into the capital structure of companies and enhance development of capital markets as a whole. It would also imply higher expectations for greater transparency in company information and corporate activities, and increase requests for better corporate governance and independent agents for the companies. Financial distress and, more importantly, bankruptcy would consequently relate very closely to control and protection offers by debt covenants.

In examining these issues, Lane and Milesi-Ferretti (2006) indicate that a country's international balance sheet could form the basis for the country's external finance structure. Their study looks at aspects of debt leverage on a country level. The importance of equity, external debt and foreign direct investment could exert indirect influence on the capital structures of individual firms. Given that country risk could influence corporations at the micro level, it is

important to fully understand a country's internal and external debt profiles, as these could lead to firms incurring different kinds of debt. For instance, if the sovereign has a high quality credit risk rating the firm would prefer to issue more global debt credits, as the sovereign credit ceiling would not cap the firm's borrowing credit rating possibly resulting in a lower credit risk premium for borrowings.

From a country risk perspective, Lane and Milesi-Ferretti (2006) indicate that the large accumulation of net external liabilities in Central and Eastern Europe and high net capital flows can finance external current account imbalances. In particular, equity type flows could allow borrowing countries to share risk with foreign investors more effectively. In other words, the profitability of capital investments linked to returns of the domestic economy and the rate of return on external liabilities can be higher than the debt rate of return. The authors also suggest that faster export growth, lower spreads on external debt, and higher European Union transfers and higher labor remittances, can all contribute to external adjustments. On the other hand, the structure of the country's external portfolio influences the cost of external finance. Furthermore, Lane and Milesi-Ferretti also suggested that foreign debt spreads can be defined as combining the effects of default risk premium on euro-denominated bonds and default risk premium plus currency risk premium on domestic currency bonds. This provides the general concept of credit risks in the form of spread valuation at the sovereign debt level.

In China's emerging economy, state owned enterprises have gradually transformed from the old communist system. In a bid to help the ever improving economy to grow stronger, many state owned enterprises were privatized,

simultaneously becoming more sophisticated. This situation is represented in the China corporation reform during the transformation era from 2005 to 2007.

The relatively new concept of corporate governance refers to the system of checks and balances and processes that a company employs to ensure its business is functioning in an ethical manner (Xiao, 2005). There are many features of good corporate governance that will be discussed in the literature review chapter along with the issue of how covenants could be incorporated to achieve good corporate governance and resolve agency problems.

Corporate governance in Chinese enterprises appears to be a problem due to two main factors (Xiao, 2005). Firstly, there is no precise and detailed law system that regulates morally unethical corporate behavior. Investors are not protected from firm bankruptcy and seldom resort to litigation to uphold their rights. The second and more important reason is that Chinese enterprises do not typically make a conscious effort to protect investor rights. Rather, they are more concerned with interpersonal relationships and self-interest, resulting in the agency problem.

Some possible solutions to the agency problem issue include the passage of more specific and clear laws, such as the “change of control” requirement, (Xiao, 2005), which was established to align managerial interests with those of investors, including shareholders and debt holders. Ownership structure may also help alleviate the effects of the agency problem. These protective measures towards better corporate governance have been suggested and established in an effort to protect China from scenarios replicating Enron and Worldcom.

Because China is the new emerging world power, its economy represents an integral part of the world's financial system's wellbeing. According to Ho (2003), the 1997 Asian Financial crisis stemmed from issues such as agency type problems and poor risk management control. Ever since the Global Financial Crisis in 2008, the whole world has its eyes on China's economy and any indication of weak corporate governance and/or evolving agency problem issues could have a detrimental domino effect on the world economy. Rapid economic development in emerging markets such as China usually fosters profitable business and produces more feasible financial results. However, distress and bankruptcy continue to be a major concern to debt investors, not least because Chinese enterprises rely considerably on macro-economic development.

1.3.1 Limitations In The Literature Examined

Bond covenants can play an important role in debt issues, especially in the non-investment grade bond market, where buyers would be reluctant to buy without the protection of a standardized covenant package. This is particularly true in China, as well as other developing markets, since bond market conventions are less well-developed here than in developed markets. However, little has been done to examine how bond covenants affect Chinese global bond valuation or its credit spread.

There is no shortage of studies exploring emerging bond markets and comparing differences between the investment focus and risk pricing factors with developed markets (Dailami & Hauswald, 2003; Fan, Titman & Twite, 2003). In comparison, however, there is a limited amount of research on bond covenants in China's

global bond market. This thesis explores this area by studying the influence of debt covenants on China's credit valuation.

Previous literature about interactive effects provides only a limited understanding of the impact of Chinese global bond covenants on valuation. Specifically, whereas literature on developed country bond markets is abundant, it does not provide a synthetic picture of the developing country context. Few papers explicitly examine the role of bond covenants in bond valuation. More often, bond covenants as a valuation tool are judged qualitatively to gauge the pros and cons of additional restrictions on the issuer's activities (Paglia & Mullineaux, 2006; Smith & Warner, 1979). There is no doubt that these papers provide valuable insights into the impact of each separate individual risk factor, namely, information asymmetry, agency problem, financial distress, and bankruptcy. However, they also limit themselves to single effects and consequently neglect to account for interactive effects among risk factors (Myers & Majluf, 1984; Titman & Wessels, 1988; DeAngelo & Masulis, 1980).

In short, while there is no adequate framework for bond covenant analysis, work by Anderson and Sundaresan (1996), Fan and Sundaresan (2000), Merton (1974), Block and Cox (1976), and Leland (1994) constitutes a strong foundation on which to build a better theoretical understanding of bond valuation. However, because this work treats bond covenants only indirectly, such as through their effect on dividends, taxes, and asset volatility, it also fails to address individual risk factors separately in their quantitative equations.

It is precisely because of expanding developing markets that more attention needs to be paid to the role of bond covenants in valuation. Analyst self-insight,

or what analysts think about these issues and factors considered during decision-making could enable a better understanding of configural cue processing with respect to Chinese global credit spread valuation.

With regards to the China bond market, there are unique differences between other countries which disallow a direct transfer of established literatures and theories to apply. The China bond markets referred to in this thesis are offshore RMB bonds, which are targeted towards investors that operate outside of China. This includes Hong Kong, one of the largest offshore RMB hubs. The RMB prices trade a differential to the onshore RMB due to different market dynamics. Issuers in China are also largely dominated by state-owned corporate and quasi-sovereigns. These issues are to be taken into account of when looking at China bond, and may affect the valuation framework commonly used in western countries when transferred to China. This thesis is conducted in a China bond context, and inputs from survey and interview participants pertain to China bonds only. Hence, transferability of the results of this thesis are limited to issues relating to China bonds. The difference in valuations between countries shall be left for further study,

In summary, the analysis of covenants in China is of growing interest for the following reasons. Firstly, given the growing strategic role and importance of China in the global economic landscape, it is essential to establish a framework to observe and understand the impact of features of the credit market in China. The literature in this area is relatively limited as the market is still very young compared to developed countries.

Secondly, and as mentioned in the previous sections, the credit market in China has distinctive characteristics not shared by other markets. For instance, there is still a large portion of corporate issuers in China that have state-owned backgrounds and bond issues tend to have shorter tenures. This would affect how valuation methods and covenants are applied, and lead to a different framework for looking at Chinese credits.

Thirdly, as China takes steps to accelerate the previously gradual pace of the Renminbi liberalization and lift restrictions on currency remittance, there will inevitably be a shift in the financing choices for corporates. This will see further expansion in the currently still fledgling credit markets of China. The dynamics of valuation and covenant pricing may also further develop based on current fundamentals. The study of this thesis in the China bond market aims to enrich the limited literature in the impact of covenants and provide an initial base for future studies to further develop on.

1.4 Description Of The Problem

This research examines the qualitative side of valuation using bond covenants in an effort to provide a more comprehensive understanding of global bond valuation of Chinese enterprises. In the past, developing and developed countries have not paid enough attention to bond covenants in debt valuation. It is necessary for more research in this area given the rapidly growing financing market. However, given the increasing concern for the security of debt valuation due to reckless risk taking investments, bond covenants will undoubtedly assume a more significant role in determining value.

The motivation for investigating China bonds is that the effect of covenants on valuation is not widely researched and evaluated. However, the Chinese global credit market has grown rapidly and there is increased international interest in this market. The speed of privatization and corporate reform in China has been rapid in the past decade and corporate and bankruptcy laws have not been developed as sophisticatedly relative to more mature markets.

The Chinese global bond market is less liquid and relatively thinly traded compared to developed markets such as the U.K. global bond market. This makes it challenging for investors to accurately assess the various risks associated with a bond issue. It would be helpful for both practitioners and academics to share their insights on the valuation of these risks, especially for practitioners who have been involved with covenant use and valuation in these markets that do not have a long history.

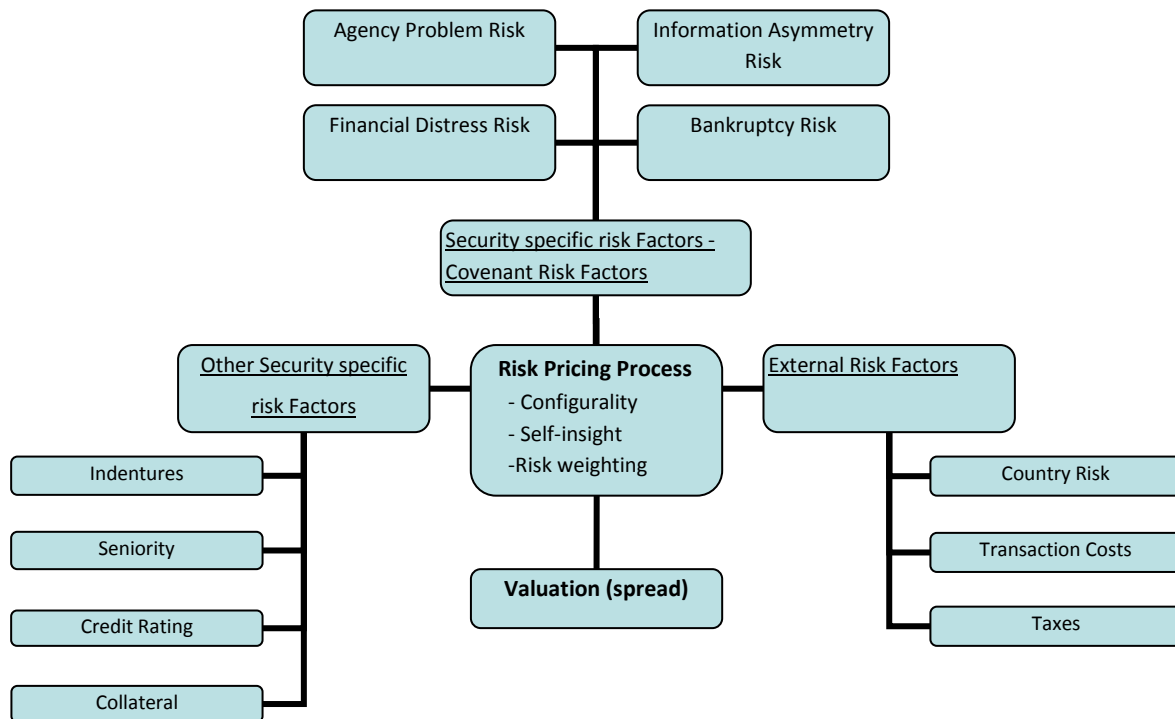
This research will expand the current debt valuation framework by including a more qualitative approach. The primary objective of this thesis is to determine the importance of agency problems, informational asymmetry, financial distress, and bankruptcy cost covenants in debt valuation through their main and interactive effects. In addition, knowledge of the investors' degree of self-insight in bond valuation with regard to bond covenants will facilitate better assessments of the usefulness of bond covenants as a tool in valuation. This research will thus be useful to fixed income investment professionals involved in the Chinese market. Furthermore, the thesis will explore and deepen understanding of covenant protection and credit spread valuation of the Chinese global bond market by examining how covenants might influence debt valuation. In so doing, it aims to contribute to the financial community including the Hong Kong and Chinese bond

governing bodies and their regulators by revealing different possibilities of minimizing the systematic risk of the Chinese global bond market.

1.4.1 The Proposed Model Of Bond Covenant Risk Pricing

Chart 1 contains a debt valuation model facilitating a better understanding of the role of bond covenants in Chinese global bond pricing.

Chart 1 – *Thesis Model*



As shown in the model above, the risk pricing process is dependent on two main types of risk, namely internal and external. Other security specific risk includes factors inherent in the bond issue, such as indentures, collateral, seniority, credit rating, and covenants. External risks include country risk, transaction costs and taxes, which are not controllable by either the company or the management. Although covenant risk factors are the main components of security specific risk factors, these are shown separately in the model for the sake of clarity. As the thesis focuses primarily on bond covenants, external and other security specific risk factors will be defined in Chapter 2 and thereafter discussed only briefly.

The model includes four main covenant risk pricing factors: information asymmetry, agency problems, financial distress, and bankruptcy. These four factors are not affected solely by covenants, but also by internal and external risk factors. These reflect the institutional constraints faced by firms as pointed out by Lin, Peng, Yang and Sun (2009).

This study isolates the four factors as covenant risk factors to facilitate a better understanding of their effects. These risk factors are frequently cited in bond and capital structure literature, including Dailami and Hauswald (2003), Myers and Majluf (1984), Fan and Sundaresan (2000), Dumitrescu (2006); Paglia and Mullineaux (2006), Smith and Warner (1979), and Titman and Wessells (1988). Bond covenants are primarily intended to control these risks in any subsequent financing activities, event-related activities, and/or dividend related activities. Although these risks can be analyzed individually and in combination, barring cases in which one factor contributes to a disproportionately large part of the valuation, an investor will typically look qualitatively at the combined interactive effects of risk factors. The interactive effects of a covenant's pricing factors are

the combined effects of individual factors, which affect bond valuation in addition to the individual effects of each covenant risk pricing factor.

In conjunction with risk pricing factors, the model also incorporates self-insight and interactive effects. This is inherent in the risk pricing process. Self-insight allows observation of the accuracy of investment professionals towards judging the effect of bond covenants in valuation. This is measured by observing the weight an investor places on information cues versus those measured by the experiment. Interactive effects are the movement or volatility in the valuation spread due to the combined effects of more than one risk pricing factor. In addition, the risk pricing process also incorporates the spread valuation block.

Based on this model and the thesis objectives, the hypothesis and research questions are as follows:

Research Question 1.1 (RQ1.1)

What is the relative importance of covenant protection against information asymmetry on bond valuation?

Research Question 1.2 (RQ1.2)

What is the relative importance of covenant protection against agency problem on bond valuation?

Research Question 1.3 (RQ1.3)

What is the relative importance of covenant protection against financial distress on bond valuation?

Research Question 1.4 (RQ1.4)

What is the relative importance of covenant protection against bankruptcy on bond valuation?

Hypothesis 1 (H1)

Research analysts process covenant risk factors interactively when determining Chinese global bond valuations.

Research Question 2 (RQ2)

What is the level of self-insight of research analysts making valuation decisions using bond covenants?

Research Question 3 (RQ3)

How and why do research analysts consider the four covenant risk factors in their bond valuation decision?

1.5 Research Methodology

This section deals with the thesis methodology consisting of a mixed research approach that requires quantitative and qualitative methods. To achieve the three thesis objectives, a factorial design is used as the survey experiment structure, and Analysis of Variance (ANOVA) is used to analyze the data. The in-depth interview is designed for studying the self-insight process of professionals and comprises the qualitative approach employed to support the conclusions of the quantitative approach. The mixed method approach serves as a comprehensive methodology in which one approach makes up for the weaknesses of the other. It expands the range of questions and obtains a stronger array of evidence, otherwise difficult to achieve by use of a single method (Yin, 2009). As Bryman (2004) states, the employment of mixed methods contributes to the construct validity of conclusions. In-depth interviews help in triangulation, which is defined as the combination of methods and perspectives to provide corroboration of results.

Factorial experimentation was used to test the main and interactive effects of the chosen covenant risk factors stated in Hypothesis 1 (H1). These were manipulated through various dependent variables at differing levels to solve the questions proposed by the thesis. The data collection method involves using a within-subjects design.

Chapter 3, which deals with methodology, contains a description of implemented methodologies, an evaluation of methodological advantages and disadvantages, and methodological justification.

For the qualitative section, participants were asked to fill out a questionnaire. The survey included information pertaining to the analyst's experience in corporate finance, management of investment decisions, and assessment of debt covenants with regard to the risk factors. Analysts were interviewed to provide more empirical evidence based information. The interviews were semi-structured based on the interview protocol.

Participants taking part in the questionnaire and interviews are Hong Kong based research analysts employed as investment professionals valuing Greater China Corporate bonds. The participants were asked to contribute with reference to their background in China bonds. The research universe of the proposed model includes Chinese companies and companies with equity listed on stock exchanges. Firms from other China special economic zones, Hong Kong, and Macau, are also included.

1.6 Assumptions And Limitations Of The Study

This section lays out the assumptions underlying this research and describes certain limitations in the scope and use of its findings.

1.6.1 Assumptions

Research contained in this study applies to a practical real life setting and to obtaining situations, such as bankruptcy and financial distress. These situations can serve as anecdotal evidence for use in research and in-depth interviews.

It is assumed that respondents will provide feedback based on professional standards and their expertise in their credit research areas. Use of the chosen methodology assumes that participants have insight into their respective investment experiences that enables accurate observations on bond relative valuation and risk assessment.

In including data gathered from the questionnaires, it is assumed that participants have completed the form carefully and diligently and their statements regarding knowledge of the subject matter are accurate. The risks in this study, with respect to accuracy, are minimal, as most involved participants are experienced professionals. This aspect is elaborated in Chapter Four.

1.6.2 Limitations

Limitations are defined by scope, design and application. As laid out in the research model, this study will examine the impact of security specific risk factors of bond covenants on valuation. However, other security specific risk factors and external factors will not be explicitly studied, despite anecdotal evidence suggesting their influence on valuation. In addition, this study does not directly

include key market recognized factors of spread and yields. This suggests that research results may be limited since the four risk pricing factors are not the sole drivers of valuations.

In practice, there are many forms of debt available in financial markets. However, this thesis will focus on straight credit bonds for a uniform and standard assessment. In so doing, it avoids any bond features that might influence debt valuation from time to time depending on varying market circumstances. For instance, investors could convert the convertible bond to equity when equity value becomes cheap. The option embedded in those convertible bonds could complicate assessment and evaluation of covenant protection risk factors. Spread valuation conventions would be very different in assessing bonds with structured and embedded derivative features, such as convertible options. This is another area that will not be addressed in the current thesis.

Although the market has grown tremendously since 2000 and continues to grow in the Chinese global bond market, the generally undeveloped nature of the Chinese global bond universe programmatically focuses the thesis on a limited scope of issuers. That said, what this study lacks in sample size it compensates by its chosen methodology, which offers a statistically material explanation of the research objectives.

Another concern arising from the size of the research population and its geographical location in China is that some results might be subjective with limited practicality. This is also the main limitation of using experimental design, artificiality of research results, which causes the concluded research results to deviate from reality. However, this problem can be addressed by adopting mixed

methods (Yin, 2009), where results are verified via triangulation, which in this thesis consists of using in-depth interviews. As such, mixed methodology addresses the limitations imposed by the research population and in so doing enables the research objectives to be addressed competently.

Despite lacking the capability of quantitative methods in handling significant numbers of potentially relevant variables, the in-depth interview method can complement the experiment method in theory building by offering more internal validity and explanatory insight (Yin, 2009). Further discussion on limitations of the methods will appear in the methodology section.

One limitation of this study pertains to the applicability of results to industry sectors and geographical regions that differ from the study sample. China businesses under examination can invest in other sectors, such as oil and gas, consumer cyclical, transportation and logistics, property, hospitality and food and beverages businesses, all of which have varying corporate structures. Investments in geographic locations outside China are permitted and these could contribute to a significant portion of the company's total revenues. Both types of investments could significantly contribute to a firms' total revenue and affect the allocation of risk sources and financial profile of a firm, making results of this study less representative for qualitative assessments of investments purely in China.

According to Miguel, Satyanath, and Sergenti (2003), exogenous factors such as political influence on poverty, civil conflicts and other variations of emerging market issues could affect economic institutional growth and per capita income. Military expenditures, road coverage, political democracy and social instability

were also studied with reference to gross domestic growth in their cross-country empirical research.

These exogenous factors, such as external risk factors in government policy, administrative fiscal and monetary eternities, could be applied in all stages of the business cycle. Hence, exogenous factors could potentially influence the valuation of Chinese global bonds, Wray (2004). Exogenous factors are part of the external risk factors included in country risk, political and economic policies. However, the thesis will not focus on the exogenous factors to a great extent and will leave these areas for future study.

1.7 Overview Of The Thesis

The literature review section in Chapter 2 presents the standard features of bonds and proceeds to introduce literature on the four covenant protection risk factors, namely, information asymmetry, agency problem, financial distress, and bankruptcy.

Thereafter, literature on valuation is presented and linked to the risk factors mentioned in the previous section, followed by a section on self-insight to fulfill the third thesis objective. Chapter 3 provides the analytic framework using factorial design and ANOVA.

Chapter 4 presents both the experimental and interview data findings. Chapter 5 presents the conclusion and implications of the result findings, as well as research limitations and selected areas for further research.

Chapter 2 – Literature Review

This chapter goes through the features of debt credit spread valuation and the security specific risk factors with regard to debt covenants. Other than the external risk factors of interest in this research and prior research on it, the current thesis focuses on the debt covenant, which is a central security specific risk factor of debt valuation.

The first section provides the context for reviewing literature in the area of debt covenants. This is followed by a review of key debt covenant-literature in relation to the proposed model of bond covenant risk pricing mentioned in the previous chapter. The four main risk factors are information asymmetry, agency theory, financial distress, and bankruptcy.

This section will begin by reviewing key literature in information asymmetry, and describe how this literature can be applied to debt covenants in relation to information asymmetry. Agency theory literature will then be reviewed, providing insight into debt covenant attributes related to agency theory and why covenants could theoretically relate to problem issues between corporate management and debt holders treated in agency theory. Thereafter, by reviewing key studies on financial distress, the thesis explores literature on the prevention of risk by corporations going into financial distress. Lastly, this section reviews corporate bankruptcy literature to explain how it is linked to debt covenant and why it might theoretically minimize the risk of corporate bankruptcy. All these sub sections underpin the covenant risk pricing factors and the relevant key research topics addressed in the literature.

Before treating bond credit spread valuation theory, other security specific risk factors, such as bond indenture, collateral, seniority, and credit rating, will be reviewed briefly. Literature related to external risk factors will also be reviewed in order to provide a better grasp of the valuation of Chinese enterprises' credit spread.

Last but not least, a review of the key theories in debt valuation is provided to illuminate how risk factors impact the credit spread valuation of debt. A study on the self-insight and configurality of the judges will also be presented in the final sections of this chapter to provide a more comprehensive view of the central aims of the thesis. This will further bolster the research findings derived from the quantitative study and round out the view of human factors and processes that may influence the valuation.

The final section summarizes significant gaps in the reviewed literature as well as contradictions therein and in evidence pertaining to the Chinese global bond markets. It concludes by stating how the thesis contributes to future studies in the area of debt valuation and the risk pricing process.

2.1 Protective Covenants

This section contains a summary of the importance of the bond covenant followed by a review of the relevant literature. The bond covenant, sometimes called the protective covenant, is part of an indenture or security agreement. It restricts or limits the borrower or company from taking certain actions that they might otherwise wish to take during the lending term.

According to McDaniel (1988) and the American Bar Foundation, investors were concerned about investment protection even prior to the emergence of the covenants in 1920. Deeming covenants unnecessary, the government at the time attempted to limit issuance of debt by corporations and introduced regulations in company incorporation laws. It wasn't until 1930 that covenants found their way into bonds, replacing the role of statutory regulations in company incorporation laws. Covenants provided a level of unprecedented specificity lacking in previous regulations, as a result of which corporations could issue debts tailored to the investor's desires.

By the 1950s, there grew the realization that customized covenants made it increasingly difficult to value such bonds. The American Bar Foundation's publication, *Commentaries*, was therefore conceived to standardize the wording and types of bond covenants.

According to Noyce and Dill (2011), a covenant is a contracted promise by bond credit issuers to take or not take certain actions. In addition, the covenant may

also require the company to meet certain predetermined thresholds. In this way, the covenant should reduce agency costs faced by debt security holders and the risk of investing in debt security by restricting certain company activities. In most cases, the covenant limits a company from paying a certain amount of dividend and restricts divestment or sales of major assets without prior approval from debt holders.

There are two main types of covenants, positive and negative covenants (Janes, 2003).

1) The positive covenant specifies an action that the company agrees to take and the condition by which the company must abide.

2) The negative covenant specifies actions the company agrees not to take and restricts the company's actions by such limitations.

The lender may use covenants in the following conditions (Janes, 2003):

1) To restrict the transfer, sale and lease of projects and to impose additional charges and rates on the collateralized projects.

2) To have regular maintenance of the financial coverage ratio, i.e. debt service coverage ratio; and/or

3) To limit incurring additional debt – such as restricting a merger between the borrower and another entity.

Key literature featuring the study of covenants in relation to financing and valuation is presented below. Subsequent sections will also present literature emphasizing risk pricing factors.

The first systematic empirical examination of bond covenants and the agency problem was provided by Smith and Warner (1979). They stated that companies with outstanding risky bonds tend to design the firm's operating characteristics and covenant usage of debt financing decision in ways that benefit stockholders to the detriment of bondholders. Smith and Warner (1979) also list four major sources of conflict that arise between equity holders and bondholders, namely dividend payment, claim dilution, asset substitution, and underinvestment.

Smith and Warner (1979) suggest that the value of bonds is reduced when dividend rates are raised and investments are reduced. Claim dilution occurs when additional debt of the same or higher priority is issued. In the event of default, the new debt will enjoy higher priority in liquidation, where the new bondholders pay a higher premium for this superior position. The benefits of this premium are thereby passed to equity holders. The negative pledge clause specifically prohibits firms from issuing additional higher level debt. As for asset substitution, bond values are reduced when substituting projects are introduced. The rationale for limited liability is that stockholders lose only their investment in the firm but realize most upside profits. Bond holders on the other hand bear most of the downside risk. This last conflict of under-investment suggests that a

firm with outstanding bonds has incentive to reject projects with positive NPV if the benefits from those projects accrue to bond holders. Smith and Warner (1979) argue that covenants restricting dividends should lessen the problem of under-investment.

The Irrelevance Hypothesis of Smith and Warner (1979) states that protective covenants will not change firm value when the firm's net cash flow is fixed. That is, the gains and losses will net off between bondholders and equity holders as it is a zero-sum game. Thus, covenants would merely alter the distribution of a set of payoffs, i.e. dividends, which are fixed to the claim holders as a whole.

Smith and Warner (1979) elaborate that under a non-fixed investment policy, dividend payout, asset substitution, and underinvestment could either represent potential opportunities for wealth transfer or benefit only the equity holders. Equity holders make their decisions based on a firm's value-maximizing investment policy. It is also suggested that firm structures have different levels of claims in the firm's assets so that investors would enjoy the same wealth redistribution, being that equal proportions of both the firm's debt and equity issues are held by investors. In practice, however, investors would be indifferent. In that case, the bondholder-stockholder conflict over investment policy will be controlled without additional cost.

Smith and Warner (1979) also present the Costly Contracting Hypothesis (CCH), which states that, an optimal set of financial contracts and covenants can control the bond holder-equity holder conflict and increase firm value. Four categories of covenants, relevant to the four sources of bondholder-stockholder conflicts are analyzed. These are production/investment, dividend, financing, and bonding

covenants. The authors infer that the ingenuity with which debt contracts are written indicates strong economic incentives for the firm's owner to lower the agency costs resulting from risky debt. In conclusion, they state that investment and production covenants are costly and therefore inefficient; where dividend and financing policy covenants involve lower monitoring costs and should offer an efficient reduction of conflict. However, this conclusion lacks adequate empirical support, only partially provided in a subsequent study by Bradley and Roberts (2003).

Bradley and Roberts (2003) have studied the role of covenants in reducing or eliminating equity holder incentives to expropriate wealth from bondholders. Like Smith and Warner (1979), they break agency costs into four major categories, and for the conflict of unauthorized distribution, reiterate their predecessors, that in extreme cases, managers can expropriate bond holders' wealth by liquidating the firm's assets and distributing proceeds to equity holders. They also qualify this position by pointing out that fraudulent conveyance laws restricting such activity represent an implicit set of covenants. Covenants may contribute additionally by designating dividends to be paid out of earnings only. Covenants may also restrict a sale of assets unless bondholder approval is obtained. Although Bradley and Roberts (2003) are consistent with Smith and Warner (1979) on this issue, their study contains stronger empirical evidence deriving from a sample of 14,112 loans and provides a more detailed examination of bond covenant effectiveness. In sum, their conclusion reinforces the assumptions of Smith and Warner (1979) and the Costly Contracting Hypothesis, that the presence of a covenant reduces the promised yield of a debt agreement.

Harris and Raviv (1989) observe that securities are a committed device, similar to the Jensen and Meckling (1976) critique, in which an entrepreneur could

maximize his/her own wealth. Conflicts of interest among agents could induce the management to design securities that try to adhere to the so-called total-value-maximizing resistance behavior. This means that the agent always acts in self-interest or in the interest of shareholders.

As mentioned earlier, covenants can help prevent wealth transfer from debt holders to equity holders by monitoring agency risks and ensuring proper corporate governance. Kaplan and Stein (1990) use the Beta calculation to estimate the amount of premium debt investors are allowed when a significant amount of debt is added to the leveraged buyout in an attempt to benefit equity holders. Specifically, they measured the recapitalization timeframe and found that higher leveraged buyouts resulted in a reduction of fixed costs attributed to higher cash flows and lower costs due to taxes.

Another wealth transfer conflict involves that between the equity holder and bondholder interests. Regarding this, Asquith and Wizman (1990) explain how covenants can make a difference in debt holder wealth in leveraged buyout of firms. On testing 65 leveraged buyout proposals, debts were examined before and after the announcement. Their result clearly indicates that on average equity holders' wealth benefited from higher gearing. Asquith and Wizman (1990) also found several covenants that were violated in some buyout activities, which included covenants such as debt limitation, dividend as a proportion of retained earnings, and restrictions on merger activity. Before the buyout could have proceeded, some of those outstanding debts had to be called upon, repurchased, and compensated, depending on relevant covenant protections. Asquith and Wizman (1990) divide the discussed covenants into 3 main forms, namely, strong, weak, and no protection, which refers to ex-ante protection. Their results were similar to those of Kaplan and Stein (1990), who state that debt holder returns

were affected by highly geared conditions, and covenants did alter some of those results and mitigate the impact. According to them, covenants make a difference in the valuation of credits.

Nachman and Noe's study (1994) examined which security was best to sell in order to raise required capital. They found that the design of a security, such as the inclusion of additional protection, was the best way to optimize a firm's capacity to raise capital and maximize firm values. Nachman and Noe (1994) try to determine whether mispricing depended on a security's characteristics using the Asymmetry Information Theory of Myers and Majluf (1984).

In particular, this thesis is based on the more recent works of Dailami and Hauswald (2003), Fan and Sundaresan (2000), and Paglia and Mullineaux (2006), as listed in Table 1. These will be discussed in more detail in subsequent sections.

Table 1 – *Key Literatures And Their Main Features*

	Dailami & Hauswald (2003) adapted from Jensen & Meckling (1976)	Fan & Sundaresan (2000) adapted from Leland (1994)	Paglia & Mullineaux (2006) adapted from Smith & Warner (1979)
Types	Infrastructure project bonds	Corporate bonds & loans	Bank loan contracts
Focus	Contractual covenants	Cash flow based covenants	Financial covenants
Specific Coverage	Emerging market bonds	Debts with equity holders	Commercial loan contracts
Key attributions of Research Findings	i) Legal & institutional framework ii) Default & court supervised proceedings iii) Rights & duties of various parties iv) Different classes of claims	i) Liquidity induced default ii) Strategic default iii) Corporate dividend policy iv) Debt re-negotiation	i) Ex-ante information problem ii) Restriction on borrowers' behavior iii) Incentive to monitor financial distress iv) Protect from agency problem
Method	Econometric analysis	Game theoretic setting	OLS & Logit Regression

2.1.1 General Description Of The Role Of Covenants

This section contains the general issues that Chinese enterprises face when making financing decisions, which can share a direct or indirect relationship with debt covenants and indentures.

For the purpose of this study, firm valuation and security valuation will always be considered in relation to the fundamental decision of financing. To arrive at a

firm's optimal financing decision, business, operation, and investment requirements must be satisfied through the financing mix that provides the cheapest source of funds. Thereafter, the amount of cash would be distributed to the creditors' and shareholders' invested firms, which in turn would determine the financing mix. The financing mix is also affected by the risk tolerance of Chinese enterprises under different business scenarios.

For instance, entrepreneurs are likely to adopt a form of financing structure consisting mostly of debt due to the fact that equity capital markets are difficult to access when there is no identifiable business history. Small to medium businesses would be able to access only banks as their primary funding source. Small firms would not be able to pursue a long run mixture of varying debt financing decisions. The outcome, according to Phillips and Volker (2000), is that the theory of capital structure and cost of capital decouples large and small firms. Hence, financing structure determinants are applied differently to large firms as compared to small firms.

Some small to medium enterprises have difficulty expanding their business operations through finance borrowings in capital markets. This is particularly obvious when their business is not as transparent and has limited resources to pledge against their debts. Furthermore, if a company does not meet the requirements to be listed on a stock exchange, then there is no possibility of it raising capital from equity based initial public offering. In some cases, companies have found sponsors or issued small scale corporate debt or contractual loans. However, this usually involves a great deal of legal detailing other than simply specifying standard types of covenant and indentures.

Titman and Tsyplakov (2005) emphasize that the financing decision is a determinant in capital structures, and find that covenants influence debt security valuation. Covenants are designed to interact with borrowers when previously negotiated thresholds are breached. This gives lenders the right to take pre-emptive actions before it becomes impossible to recover the principal and its residuals. Actions could include liquidating borrowers' assets, negotiating restructuring to generate cash for repayments, or imposing further restrictions on the firm to prevent mismanagement or further deterioration.

Dailami and Hauswald (2003) evaluate covenant provision types, including capitalization requirements, nature of the businesses, lien limitations, and dividends. They also analyze credit spreads determinants. In order to analyze the at-issue credit spreads of the emerging market project bonds, the authors considered how legal, regulatory, economic, and financial institutional factors influenced perceptions of its credit risk, or the borrowing cost of underlying developments.

With regard to debt covenants, credit valuation on ex-ante functions and ex-post functions, Paglia and Mullineaux (2006) conducted research on how covenants, which provide a series of information, could influence pre and post debt restriction actions. In the same study, Paglia and Mullineaux (2006) also looked at financial covenants used in bank loans offered by large financial institutions. They found that the breadth and frequency of financial covenants could help determine the risk valuation of loans from large banks. These standard provisions might vary across different practices but share the same basic purpose, which is to monitor the borrower's conduct and to prevent any potential violation of the loan agreements.

Paglia and Mullineaux (2006) also examined how covenants might have affected the firm's performance and in turn benefited the lenders' decision in lending to the borrowers. They defined two main functions of the covenant, namely the ex-post function and the ex-ante function. The ex-post function of covenants allows bondholders or lenders to intervene if the conditions of an agreement are violated. The ex-ante function is used to restrict the equity holders from transferring wealth from bondholders to equity holders. The results from Paglia and Mullineaux (2006) show that large banks use covenants to deal with matters related to agency problems and information asymmetry. In addition, covenants provide incentives to keep track of credit risks by monitoring the explanatory variables normally set under standard contracts.

Covenants can work as a medium to reduce the behavioral risk of the management. However, the costs covenants applied could be too restrictive and ultimately restrain the growth of a firm. The risk and benefits of covenants have a direct relationship with the price valuation of the debt and bond instruments. Hence the optimal debt contract should strike a balance with the objective of maintaining an appropriate valuation.

Although covenants could lead to too many constraints on a firm's investment decisions, from an information asymmetry point of view, they might boost the confidence of investors and should therefore be taken into account when valuing a firm. However, the question remains whether covenants would really ruin investment prospects when they have been designed with the intention of improving the performance of the firm. This is especially so if the results ensure timely repayment of coupon interest and principal, as in the case of large banks applying covenant conditions at their own discretion.

Paglia and Mullineaux (2006) found on average three covenant classes per loan among the 238 loan samples collected from large financial institutions. The most common covenants were liquidity, equity, debt and leverage, coverage and cash flow, investments and dividend and distribution covenants. Debt leverage and coverage cash flow covenants could impact the opportunity costs of a firm's planned investments, and other covenants are used to maintain firm status rather than setting any restrictive clauses or conditions.

The main purpose of Chinese global bond covenants is to protect investors against risk and secure their investments. This study takes this idea further and explores the protective effects of covenants against information asymmetry, agency problems, financial distress, and bankruptcy. This protection is what makes covenants significant to global bond investors.

Information asymmetry becomes a significant issue when the debt-issuing firm does not make public its fundamental status or aspects of its financial information. This happens either because the firm is not listed on the stock exchange, which requires much stricter disclosure of information, or because the firm does not have the resources to reveal its credit quality to investors through research firms, such as credit agencies.

Investors without access to restricted information would not be able to make a proper evaluation when considering investments in the firm's debt instruments. This is clearly a disadvantage to debt investors or to any outsiders. Covenants can act as an effective financial tool to encourage increased disclosure of inside information to the public, and transform any inside information into outside information, effectively leveling the playing field between outsiders and insiders.

Similar to information asymmetry, agency problems would be a key influence in a firm's management decision. The firm's management should favor no parties, firm owners, or creditors, as this could lead to conflicts of interest between shareholders and debt holders. If no fit and proper corporate governance rules apply to the company internally, covenants can be used to help the firm's management act rationally and minimize agency problems.

With regard to covenants that limit information asymmetry and agency problems, a firm's management would have to abide by strict rules to act in a fair manner when considering decisions that would impact market value. Hence, covenants could reduce the possibility of financial distress, and prevent the firm from going bankrupt.

2.1.2 Overview Of Debt Covenant Literature In Emerging Markets

As Dailami and Hauswald (2003) point out, most recent literature focuses mainly on U.S. corporate space. There is little work on the role of debt covenants in Asia, a lack of interest that can be attributed to the historically limited scope and limited volume of debts. Today however, emerging countries are strengthening the foundations of their legal and political frameworks, though covenant use continues to remain a grey area compared to the complex understanding of covenants in developed countries. The market situation in some countries in particular has changed enough to acquire a better understanding of covenants and their role. State owned enterprises in China, for instance, have gradually transformed out of the old communist system. In fact, many state owned enterprises, which grew increasingly sophisticated, were privatized in a bid to

help the ever improving economy grow stronger. Therefore, following the lead of Dailami and Hauswald (2003), this thesis attempts to help fill the gap regarding China by examining project bonds in emerging countries.

Chinese credit covenants share characteristics with project bonds covered by Dailami and Hauswald (2003). It should be noted that the examples they used were based on the New York legal framework jurisdiction, not on China. However, they conclude that a country's economic viability and legal framework coupled with the project contractual structures are key factors influencing credit spreads or the pricing of the project debt securities.

For their research on the pricing determinants of project bonds, Dailami and Hauswald (2003) sampled 105 project bonds in emerging countries over a nine year period beginning in 1993. They found that investors considering bond valuations also took into account the effects of the host country's economic and legal framework over and above common pricing determinants. Covenants, thus, act as a 'proxy for the rule of law' when the regulatory framework is insufficient with regard to bondholder protection, and complements the legal system by ultimately contributing to valuation.

Dailami and Hauswald (2003) identified three project factors that could affect the costs of funding and the issue's risk premiums. These are project specific characteristics, features attached to debt instruments, and the eminence of the legal framework in the issuer's country.

The effect of debt covenants on valuation is also explored by Paglia and Mullineaux (2006), who identified the two main functions of covenants to be ex post and ex ante. To conduct their study, they used a sample of 238 bank loans that carried 28 types of covenants. Through their research, they were able to explain the role of agency problems, information asymmetry, incentives to monitor, and credit risks in their capacity as factors addressed in covenants in pricing debt securities. Their study concludes that each of the aforementioned factors play a role in determining debt risk, as covenants act as tools exerting control over the borrower. Covenants also lower default risk, thus resulting in more favorable valuation than what was possible without the covenants.

The effect of agency theory was examined by Fan and Sundaresan (2000), who adopted a game theoretic setting to observe conflict in bargaining power between equity and debt holders. Their research findings showed the restrictive effects of cash flow based covenants in minimizing dividend payouts to equity holders and improving the firm's value-generating process.

Similarly, Dumitrescu (2006), who also examined how capital structure and strategic behavior of agents affect debt valuation, states that debt security price can be changed significantly by allowing debt holders to engage in strategic behavior through debt covenants.

2.2 A Key Overview Of Debt Covenants In HK/China

This section details the bond covenants commonly found in the Greater China region to provide a better understanding of the market structure underlying this research. These covenants will be related to their respective risk factor(s) in relation to the originating issuer. Following the introduction to bond covenants, this section reviews some characteristics unique to emerging markets and discusses how these differing aspects may play a part in the pricing risks factors. This will allow a better understanding of bond covenants in Greater China.

For this thesis, a sample of 31 different corporate debt instruments has been collected from the Chinese global credit sample universe since April 30, 2008 (See Table 2). It includes issuers located in or with operations domiciled in Hong Kong, Macau, and/or Mainland China. The universe provides a well-diversified sample, with industry coverage including property, building construction, agricultural, power, energy, telecom, gaming, plantation, financial service, transportation and conglomerates.

The bonds presented in the table below illustrate the nature of covenants being used in China bonds. Some of these bonds contain options. These bonds however are not presented in the surveys for participating analysts to use in valuation. For this thesis, analysts are presented with hypothetical bond cases, without options, to allow a systemic judgment of the four independent variables on valuation.

Table 2 – Attributes of the Chinese Global Bonds

Company/Issuer	Industry	Country	Maturity	Moody's Rating	S&P Rating	Events & Litigation Record	Step Up/Down Provision	Step Up/Down Trigger	Callable / Poison Put	When Issued Spread	Issue Amount	Negative Pledge	Change of Control	Limit of Indebtedness	Cross Default	Negative Covenant	Certain Sales of Assets	Restriction of Activities	Debt Service Coverage Ratio	FCF to Debt Service Ratio	Restrictive Covenant	Merger Restrictions	Limitation on Sale & Leaseback	Limitation on subsidiary Debt	Restricted Payments	Ratings Trigger	Collective Action Clause	Material Adverse Change Clause	Force Majeure
CNOOC	Energy	China	8-Mar-2012	A2	A-	X				163	500	X			X	X	X	X			X	X	X						
China Overseas	Property	China	13-Jul-2012	Baa3	BBB-					181	300	X	X		X	X	X	X			X								
Road King Infrast.	Infrastructure	China	15-Jul-2011	Ba2	BB					212	200	X		X	X			X						X					
CITIC Pacific Fin.	Conglomerates	China	1-Jun-2011	Ba1	BB+	X				228	450	X			X		X	X				X	X						
Parkson Retail	Retail Consumer	China	14-Nov-2011	Ba1	BB	X				321	200	X	X	X	X	X	X	X			X	X	X	X	X	X			
Xiniao Gas	Energy	China	5-Aug-2012	Ba1	BB+					332	200																		
Shimao Property	Property	China	1-Dec-2016	Baa3	BB+				C/P	340	350		X																
Hopson	Property	China	9-Nov-2012	Ba2	BB+	X			C	359	350	X	X	X	X	X	X	X			X	X	X	X	X	X	X		
Shanghai Real Estate	Property	China	24-Apr-2013	B1	BB-				C/P	373	200	X	X	X	X	X	X	X			X	X	X	X	X		X		
Asia Allumium	Bldg Construction	China	23-Dec-2011	B1	BB-					410	450	X			X														X
Titan Petro	Energy	China	18-Mar-2012	B2	B	X			C	418	400	X	X	X	X	X	X	X			X								X
Agile Property	Property	China	22-Sep-2013	Ba3	BB				C	426	400	X	X		X			X											X
GreenTown	Property	China	8-Nov-2013	Ba2	BB					432	400		X																
Panva Gas	Energy	China	23-Sep-2011	Ba1	BB+					446	200	X	X	X	X	X	X	X			X	X	X	X	X				X
China Fishery	Agricultural	China	19-Dec-2013	B1	B+					476	225	X	X	X		X	X	X			X	X	X	X					
Chaoda Modern	Agricultural	China	8-Feb-2010	Ba2	BB	X				479	225	X	X	X	X	X	X	X			X	X	X	X	X				X
Sino Forest	Plantation	China	17-Aug-2011	Ba2	BB					483	300	X	X	X		X	X	X			X	X	X	X	X			X	
Ocean Grand	Industrial	China	7-Dec-2010	D	D	X			C	498	160		X	X			X					X	X	X	X				
Xinhua Finance	Financial Service	China	21-Nov-2011	B1	B+				C	568	100	X	X	X	X		X	X				X	X						
AES China Gen. Co.	Power	China	26-Jun-2010	B1	B+	X			C	638	175	X		X	X	X	X	X							X		X	X	
GITI Tire	Industrial	China	26-Jan-2012	B3	B-	X		P		762	200	X	X	X	X	X	X	X			X	X	X	X	X				
PCCW HK Telecom	Telecom	HK	20-Jul-2015	Baa2	BBB	X				120	500	X			X		X	X				X							
China Trust CommBk	Financial Service	HK	17-Mar-2049	Baa1	BBB				C	128	500																		
HK Land	Property	HK	3-May-2011	A3	BBB+					195	600	X			X		X	X				X							X
Jardine Strategic	Conglomerates	HK	8-Nov-2011	Baa1	BBB+					225	300	X			X		X					X					X		
Town Gas	Industrial	HK	7-Aug-2018	A1	A+				C	237.5	1000																		
Lai Fung	Property	HK	4-Apr-2014	B1	B+					457	200	X	X	X	X		X	X				X	X	X	X				
City Telecom	Telecom	HK	1-Feb-2015	B2	B	X	X	X		458	125	X	X	X	X	X	X	X			X	X	X	X		X			
Nine Dragon	Industrial	HK	29-Apr-2013	BBB-	X				C	505	300	X	X		X	X	X	X			X	X	X	X					
Galaxy Entertainment	Gaming	HK	15-Dec-2012	B1	B+				C	549	350	X	X	X		X	X	X			X	X	X	X	X				
Cathay United	Financial Service	Taiwan	5-Oct-2020	Baa1	A-	X			C	125	500					X	X				X	X					X		

(Source: Individual Bond Prospectus Data)

The research criteria are that the instruments must have some kind of indenture, protective covenant and/or other related protection features provided to the debt investors. The sampled credit universe is a collection of the most active debt instruments in the market place. This is to ensure efficiency in identifying the explicit effect of covenants on valuation.

In terms of the instrument criteria, the thesis focuses only on fixed income instruments, that is, bonds or any debt obligations other than loan agreements.

Credit rating is not required in selection because covenants normally come with corporate issuers that have low credit ratings. The attached covenant normally serves to protect debt investors.

Among the 31 bonds selected, 21 issuers are domiciled in China. Despite this, most of the non-China domiciled issuers have a portion or a major part of their operations in China. This subjects them to the same dynamics and economic factors for companies operating in China. Bond issuance by Mainland Chinese companies is largely subject to approval by the State Administration of Foreign Exchange and the China Securities Regulatory Commission, which abides to different standards from the Hong Kong regulators that have traditionally followed the UK standards.

China's former leader, Deng Xiaoping, the chief architect of China's open policy and economic reforms, in 1978 outlined a fundamental new approach to the sovereignty and management of Hong Kong and China under one country two systems. This applied to Hong Kong and Macau, which shares similar law systems, inherited as former British and Portuguese jurisdictions (Yeung, Lee & Kee, 2009). But considering a dominant proportion of Chinese issuers of offshore RMB bonds have a listed status in Hong Kong, they should share similar regulatory and reporting standards. This is especially as economic institutional interactions between China, Hong Kong and Macau have increased when the gap in levels of development between the regions narrowed considerably (Yeung, Lee & Lee, 2009).

Another key difference between China bonds and Hong Kong or Macau bonds are on a policy front. Companies operating in China, especially state-owned

enterprises are affected by changes in government policies. For instance, oil prices are controlled by the state on a lagged basis that loosely track market prices. Policy changes can have large implications for corporate operating in China. For the purpose of this thesis, and given the dominance of China issuers in the global Chinese bond market, the covenant structures for issues in Greater China do not deviate significantly. Participants of the surveys and questionnaires are also China bond professionals, and representative of the China bond market.

From this universe of debt securities, the key covenants are organized and categorized in a way that reflects their key functions. The covenants are organized according to the four risk factors identified previously, namely information asymmetry, agency theory, financial distress, and bankruptcy. The four main covenant risk factors can be classified as security specific risk factors influencing debt valuation.

In addition, the operational environment and business condition of the Chinese enterprise would make a financial difference if there were no parameters constraining the borrowed funds. These would come from external factors such as transaction costs or taxes. Management could invest borrowed funds in investments not necessarily consistent with the agenda of debt investors. Titman and Wessells (1988) indicate that transaction costs could be a major consideration in the financing decision that may ultimately alter the industry's bankruptcy factor or the operating risk related to leverage. The costs to the company could involve lost profitability, increase in borrowing costs in situations of financial distress, and even liquidation and insolvency when bankruptcy arises. These issues will be discussed in subsequent sections.

Descriptions of the 18 common covenant clauses that can be found in Greater Chinese global bonds include the following:

1. Negative Pledge - It can prevent the issuer from raising secured debt unless it provides security ratably, thereby limiting subordination. It is also intended to constrain an issuer's ability to create secured debt ahead of the existing company (Moody's Global Credit Research, 2007).

Negative Pledge can also be a provision in a bond that prohibits an issuer to the contract from creating any security interests over certain property specified in the provision. It can be set in an indenture agreement stipulation in that the company guarantees it will not pledge any of its assets if that pledge would decrease debt holders' security. The borrower would agree not to pledge any assets if such pledging would result in less security for the agreement's bondholders. Negative Pledge is also referred to as covenant of equal coverage. The purpose of the negative pledge is to protect the security's first secured creditor by prohibiting the enterprise from granting security interest or creating a higher level of security interest over the same property (Moody's Global Credit Research, 2007).

2. Negative Covenant - It is a restrictive bond clause intended to prevent a corporation from benefiting shareholders at the expense of the bondholders, such as in the form of paying out dividends. The provision in a bond agreement imposes one or more constraints on the issuer. This can normally include restrictions such as ceilings on the executives' salaries, prohibition on acquiring more debt, and tighter control on level of dividends (Christensen & Nikoleav, 2010).

3. Change of Control – It is a bond provision which allows for the redemption of the bonds in the event of a corporate takeover, a process undergone by the company when its control shifts from one party to another. It is designed to protect bondholders from corporate activities such as leveraged buyouts as well as from any change in ownership that affects the credit quality of the company (Moody's Global Credit Research, 2007).

A change of control could refer to any merger or anti-takeover restructuring that would dissolve significant corporate assets. Change of control by an issuer's enterprise can occur for various reasons, including new leadership or an acquisition of the company. When an enterprise changes control, an investor must evaluate how this might affect the value of the company (Moody's Global Credit Research, 2007).

4. Certain Sales of Assets - The covenant indicates a restrictive covenant limiting the issuer's ability to sell any or all of its assets (Moody's Global Credit Research, 2007). This covenant limits or prohibits corporate actions in sales of assets that could impair the position of creditors.

In some conditions, sale of assets covenants allow disposals but it should meet certain criteria including: the value meeting a minimum percentage of the payable consideration must be in cash and the value obtained must be fair value, or, the sale proceeds must be used in a specified way, such as towards re-investing or paying down debt (Allen & Overy, 2007).

5. Restriction of Activities – This covenant prohibits activities that may disadvantage debt holders (Allen & Overy, 2007). Restriction of activities on payments could limit an issuer's ability to:

- Distribute cash, assets and securities to shareholders
- Redeem subordinated debt
- Repurchase equity; or
- Provide dividends

Such clauses could restrict the issuer's ability on actions such as investments and joint ventures. By thus providing a circuit breaker between shareholder and debt holder conflicts, the debt holders have a better chance of a fair trial when shareholders try to stretch firm actions to their benefit at the expense of creditors (Allen & Overy, 2007).

6. Restrictive Covenant - It is a bond covenant clause that requires one party to either refrain from or perform certain actions imposed by the bondholders on the issuer. It is a legal obligation imposed by the issuer in a deed. The pledge is made by the issuer to restrict the company from the specified activity that could be considered detrimental to the bondholders (Moody's Credit Research, 2007).

7. Merger Restrictions – It is a restrictive covenant placed on the issuer explicitly stating that the issuer may not merge or consolidate with any other entity. It is intended to limit an issuer's ability to substantially merge or consolidate with another corporation or the issuer from conveying all of its assets in one or more related transactions (Moody's Credit Research, 2007).

8. Restricted Payments – It is a restrictive covenant that limits an issuer's ability to make distributions, whether in cash, assets, or securities, to shareholders, to redeem subordinated debt, to repurchase equity, or to provide dividends. The provision could create a significant safeguard in the context of shareholder-creditor conflicts and the potential for shareholder activists to pressure management to reward shareholders at the expense of creditors (Moody's Credit Research, 2007).

9. Ratings Trigger – It requires a firm to repay its debt or to increase the coupon rate on the debt if the firm's credit rating falls to the liquidation trigger (Bhanot & Mello, 2006). Ratings trigger with step-up coupon bonds can establish a separating equilibrium and could overcome information asymmetry problems (Koziol & Lawrenz, 2008).

The ratings trigger gives a put option to the bondholders if the bond falls below a designated credit rating, usually investment grade, such as BBB credit rating by S&P or Baa3 by Moody's. These actions may be taken if the issuer's credit rating or score declines to an unsatisfactory level over the course of the bond. At the time of such an event, the issuer may be required to face an elevated interest rate or procedural requirements, which the bond holder may force the issuers to complete or otherwise buy back the bonds.

10. Collective Action Clause – It is a clause designed to give the bulk of bondholders (usually 66.66% or 75% depending on different countries' legislation) the ability to consent to changes in the fundamental terms of the bond (Haldane, Penalver, Saporta & Song Shin, 2004). It allows a majority of the bondholders to

agree on a debt restructuring that is legally binding on all bondholders, including those who vote against restructuring (Drage & Hovaguimian, 2004).

11. Material Adverse Change Clause – This clause allows allocation of risks presented by adverse business or economic developments occurring between the signing and the closing of an acquisition agreement of a bond investment (Malleons Stephen Jaques, 2002). Adverse risks refer to any conditions or changes that may materially and adversely affect assets, liabilities, and financial results of operations, financial conditions, businesses, or prospects of the issuer. This clause provides protection to the bond holder in the case of any material negative change to the issuer that would render the bond holder no longer interested in committing to the issued bond entity (Mcgrath & O'Brien, 2006).

12. Force Majeure – In common practice, this clause excuses a party from performing its obligations if failure is caused by subcontractors, natural disasters, wars, or performance failures of parties outside the control of the contracting parties (Yale Library, 2000). It exempts the contracting parties from fulfilling their contractual obligations for causes that could not be anticipated and/or are beyond their control.

13. Limit in Indebtedness – It is meant to restrict the total claims on a company (Moody's Credit Research, 2007). It is an affirmative covenant that sets out clauses in debt contracts that require issuers to maintain certain levels of capital or restricts debt to a certain degree or level.

14. Cross Default - It is a stipulation stating that if an issuer is in default on other borrowings such non-payment is also considered in default with respect to the issue with the cross default covenant. This covenant also extends to the issuer's subsidiaries and guarantor if any (Moody's Credit Research, 2007).

15. Debt Service Coverage - The issuer's available cash for its debt service on total or senior debt service. It is the amount of cash flow available to meet annual interest and principal payments on debt, including sinking fund payments. It is a measure of the issuers' ability to cover or pay off its debt.

16. Free Cash Flows to Debt Service Ratio - The ratio where the issuer has sufficient free cash flows to its debt service on total or senior debt service. It is the amount of free cash flow available to meet annual interest and principal payments on debt (Friedlob & Schleifer, 2002). A covenant would usually require the issuer to meet or ensure this ratio is above a certain threshold.

17. Limitation on Sale and Leaseback – It is a restrictive covenant that prevents the issuer from selling assets or removing them from the balance sheet for accounting purposes, then leasing them back from the company to which they were sold. Its purpose is to limit the arrangement in which one party sells physical assets, such as property or factory assets, to a buyer and the buyer immediately leases the property back to the seller. This arrangement allows the initial buyer to make full use of the asset without having capital tied up in the asset (Moody's Credit Research, 2007).

18. Limitation on Subsidiary Debt – It is a restrictive covenant that places limitations on the amount of debt that the issuer’s subsidiaries can incur. This can be expressed as a percentage of assets or in monetary terms. This restricts the issuing company from issuing more debt in the future, by placing a debt limitation on its subsidiary. The current bondholders ensure that the company does not increase its leverage and thus increase the chances of the company defaulting (Moody’s Credit Research, 2007).

The current thesis has identified 18 key clauses to represent the four main determinants of covenant protection risk factors as set out in Table 3. However, only 14 of the 18 clauses are commonly applied to the Chinese global bond credits in practice. These are used to support the thesis hypothesis and are evaluated through the Chinese global bond credits. The 14 debt covenant clauses and their key related risk factors are listed in Table 3 below. Their key related risk factor, however, does not represent its sole risk factor. One clause may have the ability to protect against more than one risk factor. The key risk factor indicates the main risk factor against which the clause protects, as found in the Chinese global bond.

Table 3 – *Common Bond Covenants*

	Bond Covenant Clauses	Key Risk Factors
1	Change of Control	Agency Theory
2	Merger Restrictions	Agency Theory
3	Restricted Payments	Agency Theory
4	Collective Action Clause	Agency Theory
5	Cross Default	Bankruptcy
6	Limitation on Sale and Leaseback	Bankruptcy
7	Limitation on subsidiary Debt	Bankruptcy
8	Limit of Indebtedness	Financial Distress
9	Certain Sales of Assets	Financial Distress
10	FCF to Debt Service Ratio	Financial Distress
11	Negative Pledge	Information Asymmetry
12	Negative Covenant	Information Asymmetry
13	Restriction of Activities	Information Asymmetry
14	Ratings Trigger	Information Asymmetry

The details of the attributes of Chinese global bonds are listed in Table 2. Among these, Limit in Indebtedness, Certain Sale of Assets, and Free Cash Flows to Debt Service Ratio are described as attributes designed for protection against financial distress. These ratios are typically intended to monitor company financial profiles, which could invoke debt holders' rights when the covenants of such attributes are breached in investments (Friedlob & Schleifer, 2002).

Cross Default; Limitation on Sales and Leaseback; and Limitation of Subsidiary Debt clauses are covenants designed to protect investors from a firm's bankruptcy and its consequences. The Cross Default clause would be activated immediately on default. This clause is relatively common in the Chinese global Debt universe used for this study. Out of the issuers selected for this study, approximately 70% use the Cross Default clause.

The Collective Action Clause, Change of Control, Merger Restrictions, and Restrictive Payments are covenants commonly used to alleviate the agency problem. Agency problems might cause corruption in the company and a decline in operating cash flows and/or profitability if not treated properly.

Negative Pledge and Restriction of Activities are covenants that can be used to review the types of activities that firms are conducting and restrict unwanted activities. Ratings Trigger is another way to reflect how firms are behaving after implementing covenants to monitor business operations. They are commonly used to alleviate problems with information asymmetry. When firm actions trigger the rating restriction, conditions could be applied to control the firms' activities in order to compensate for debt investors' additional risk after such breaches.

Of the four main covenant risk factors, financial distress and bankruptcy are the two that debt investors would try to protect against the most when lending funds to Chinese enterprises through the global debt market. It is therefore important to know how and what leads Chinese enterprises into those situations. These would be the questions that debt investors pose when considering investment in Chinese global debt credits. According to Paglia and Mullineaux (2006), the ex post function of bond covenants could effectively allow bond holders to intervene on violation of a covenant, thus providing an incentive to monitor the company and its operations more effectively. Bondholders would then be granted a defense against information asymmetry. Likewise, Myers and Majluf (1984) show how information asymmetry shares a critical role in due diligence, and debt covenants could function as a means to monitor company behavior and ensure that the company follows up on business activity commitments made in shareholder meetings.

To mitigate against secrecy in bond issuer behavior, covenants can be applied to act as a legal requirement for the firm to disclose more information. Other information can also be implicitly reviewed by third party sources, such as rating agencies and independent research institutions. However, just reviewing information would not be enough to prevent and control aggressive management and/or shareholders' behavior. Debt investors lack voting rights to veto management intentions either at the company's shareholder meeting or at any corporate meeting. This is very different from equity shareholders who might have a say by objecting and/or vetoing against corporate actions detrimental to their interests. On the other hand, debt holders can only rely on covenants to influence the firm's management.

The disclosure of activities to the market, not just to investors, can be effective in reducing management actions that are against the interest of debt holders. In most cases, debt covenants could prevent transferring a company's asset or wealth from debt holders to equity holders. According to Myers and Majluf (1984), the agency problem can be more disruptive to debt holders in particular where assets can be transferred to equity holders without much acknowledgement, potentially also putting the company in jeopardy. In particular, covenants may not be as effective in preventing credit events. Rather, they could increase the chance of the issuers going into distress. As pointed out by Paglia and Mullineaux (2006), opportunities could be limited by strict indentures which are intended to protect debt investors despite being able to reduce risk induced by management behavior. The right balance of debt covenants should reduce agency costs associated with equity and debt holders' conflict of interest, and also protect debt investors from events that could arise from financial distress and bankruptcy.

Financial distress and bankruptcy, to a greater extent, could be the eventuality debt investors try to protect against when lending funds to Chinese enterprises through the global debt market. However, it would be important to know the means by which and how Chinese enterprises are led specifically into those situations. These are the questions debt investors pose when considering investment in Chinese global bond credits.

In practice, a covenant should exert a certain impact or constraint on company management. The level and type of covenant should impose varying levels of discipline on corporate debt issuers. Actual protection can vary according to the conditions and developments.

The market liquidity and excess investment demand situation gives the issuer more bargaining power and will relax constraints on them when raising cash through debt financing. This is known as the covenant light scenario, where the covenant is straightforward, though debt investors are left without much control over protection of their own debt security investments. The issuer can obtain low coupons despite weak covenant packages as a result of a benign credit environment (Bethell-Jones, Harvey, Kensell & Polglase, 20007).

2.3 General Concepts Of Debt Covenant And Their Key Risk Pricing Factors

This section discusses covenant risk factors, including information asymmetry, agency theory, financial distress, and bankruptcy. The final section identifies debt covenants by focusing on debt financing determinants in the context of information asymmetry, agency problems, financial distress, and bankruptcy, examines how these affect the valuation of Chinese enterprise credits, and explores how analysts perceive the four risk factors and their relative weight in decision-making. Also contained in this section is a thorough review of the literature pertaining to the four risk pricing factors.

2.3.1 Information Asymmetry

Information asymmetry refers to the imbalance in information shared among market participants. In theory, it could provide investors with better knowledge and transparent information for their investment decision if treated properly.

Equity investors and debt investors would be able to make more informed decisions when more accurate information is disclosed publicly. There is evidence showing that developed countries tend to have better information disclosure as a result of their regulation and policies. That is one way to prevent corruption and ensure better information disclosure in firms. This might be why stock exchanges, regulators and agencies require strong information disclosure policies. From a debt investor's perspective, information disclosure is beneficial in that it suggests when and how to make investment decisions. If global debt credit instruments are traded over-the-counter and not through stock exchanges, regulators such as the stock exchange would be unable to impose stringent information disclosure rules. As a result, debt investors would have difficulty in judging the accuracy of information on the enterprises that issue their global debt credits.

Better information disclosure can reduce information asymmetry and facilitate better assessment of the enterprise by investors (Myers & Majluf, 1984). That could also improve corporate governance and enable investors to observe and monitor the corporate management properly (Nachman & Noe, 1994). This would reduce the cost of capital and potentially realize projected cost savings in the financing structure (Modigliani & Miller, 1958).

This section is a review of important literature regarding the relationship between corporate structures and financing, information transparency, and Signaling Theory in relation to information asymmetry and its effect on valuation (Myers & Majluf, 1984).

Myers and Majluf (1984) emphasize the view that information disclosure and the effective communication of information could lead to more optimal financing. This would enable the management to make optimal decisions for the company and prevent the firm from being excessively levered.

For instance, a listed firm with well-informed managers and specialists and firm professionals armed with disclosed information is more likely to participate in valuable projects resulting in cheaper source of financing than a firm without these attributes. In other words, it is expected that firms will select the cheapest source of financing to fund projects when available. Based on the Pecking Order Theory, in order of most preferred to least preferred, funding sources go from internal funding and debt borrowings to external issuance of new equity. Hence, assuming rational management, the debt financing decision and debt covenant usage of the firm will depend on the capital financing selection priority.

In a case study of information efficiency and liquidity premium, Chang and Yu (2003) argue that the corporate debt financing decision is affected by the liquidity premium and operating efficiency. Their results indicate that the optimal leverage level could be negatively related to the amount of informed trading. This is directly related to the circulation of the firm's information to investors. In other words, open disclosure, rather than selective disclosure, of inside information to general investors would improve the firm's fair market value, which would then translate to lower borrowing risk premiums.

Arguably, from a research perspective, all forms of information should be widely conveyed to the market as required by governments, auditors, and stock exchanges for listed companies. If companies are not subject to any of these

regulators' rules, information disclosure may not be effective with only selective information relayed by companies.

According to Ho (2003), transparency, which relates to information disclosure, is a central feature in corporate governance that helps alleviate issues arising from agency problems. Transparency is achieved by releasing information to the public, equity and/or debt holders as a way of managing investment risks. Receiving transparent information in a timely manner increases the chances of reducing agency costs, a feat that is easier said than done. This is so because information in the form of accounting reports is easy to manipulate. Moreover, directors are easily deceived as they are generally not accounting specialists. This is precisely why, as Ho (2003) argues, a sophisticated financial disclosure regime despite its high cost is absolutely essential and transparent information must be presented in a clear and unambiguous manner.

Chang and Yu (2003) suggest that the unit cost of debt does not change with financial leverage, implying that all debt is financial risk free debt. That is, no matter how high the leverage of the firm, the unit cost or the risk premium is the same. This concept of unit cost of debt is contrary to conventional thinking, where risk is supposedly embedded into all kinds of debts including sovereign debt. However, from a researcher's perspective, this concept may solve some data analytic problems faced when valuing debt securities. The unit cost of debt is based on operational or firm investment risks given the existence of the risk premium. However, Chang and Yu (2003) show that firms could improve their operations by gathering useful information from their trading prices. This would include difficulties involved in reckoning whether the risk premiums are drawn upon the liquidity factor and/or the default factor. Therefore, investors made

aware of firm investments would be able to use the relevant information in their investment decisions.

Apart from the above discussion, the signaling theory with regards to indirect information disclosure provides insight into how management would make decisions regarding the firm's capital structure. Elfakhani (1995) illustrates signaling theory with the example of a firm making a dividend announcement, in which management informs investors of the firm's profitability based on the level of dividends distributed. The finance structure attributes may be interpreted as attributes used in transmitting information to the market. The dividend is perceived as a favorable policy by investors and also provides a better understanding of the firm's value.

In a perfect market situation, price actions can be either superior or inferior, depending on the fundamental values of the firm. It is not the intention of a firm to cause a change in its value by simply manipulating the results of the firm's performance. Nonetheless profitability could be a major piece of information determining an investors' investment decision in the firm. The firm's management would always expect a stable price movement to be more credible than large price movements.

Signaling theory could also include dividend information implicit in the payout ratio. The payout ratio might not be considered a cost, but is still effective in highlighting the theory. As demonstrated by Myers (1977), the Pecking Order Theory and Information Asymmetry are key indications of how shareholders interpret the performance of a firm.

Garleanu and Zwiebel (2003) review the debt valuations of subjects with regard to asymmetric information in a study. Their research considers a firm's future investments, where the firms are efficient and the covenant related information could involve wealth and asset transfer from debt holders or lenders to shareholders. Their work focuses on the effectiveness of information, and describes investment efficiency as being strongly related to the ex-post and ex-ante decision made by the firm's management. An informed manager would be able to find better opportunities and make material decisions more effectively than uninformed parties under symmetric information channels. This is how debt covenants would provide a channel for issuers to properly disclose financial, business and operational information to public investors. In turn, this might ensure the appropriate pricing of information by the financial market and thus enable the analyst to provide a proper valuation of the firm's credit spreads.

It is also important to note that research analysts assessing the business background of Chinese enterprise are certain to draw implications from how firms project their covenants in the case of raising debt financing. No matter how much weight debt investors put on the importance of the covenant, Chinese enterprises may react indifferently to companies from other major financial markets. In their study, Myers and Majluf (1984) show that while information asymmetry is a useful standpoint, it may not be applicable to all categories, such as Chinese companies or emerging markets, where information disclosure may not be as transparent as others in a different jurisdiction.

China's regulatory framework is comprehensive but immature compared to developed countries. Hence, corporate governance ensures only limited information disclosure, which is ultimately detrimental to debt investors. This

highlights the importance of covenants in their capacity as proxy for the rule of law.

On a comparative basis, there is anecdotal evidence that spreads of bonds with covenants are lower than comparable bonds without covenants in the China region. Myers and Majluf (1984) also illustrate that effective deployment of information could affect a firm's market value. Accordingly, investors could trade the bond after adjusting for the added extra protection of the bond covenant. Also, regular review of financial ratios required by the debt covenant could result in a better decision making process by investors, subsequently reflected in the firm's valuation.

In their study, Marais, Schipper, and Smith (1989) focus on the issuers' credit ratings, referred to as security specific risk factors in the model provided in this study. Issuers' credit ratings could reveal more information about the firm and also reflect the credit's valuation. Vu (1986) in his Effective Information Hypothesis emphasizes that effective deployment of information could convey information about the firm's future performance. Given that covenants can potentially affect debt valuation, analysts are not only bound to factor in additional information but also utilize it to determine a valuation, an issue that is discussed briefly in later sections.

Norton and Pettengill (1998) deploy the super poison put provision from information symmetry as a kind of signal to debt and equity investors. Super poison put provisions are designed to allow bondholders to put their debt holdings with the issuer at par or premium after a downgrade, or when specified events take place within the investment time frame. However, it does not seem

common for Chinese global debt securities to include similar covenant provisions. Moreover, the application of put-able and step-able option features is limited within the sample data for this research.

Norton and Pettengill's study (1998) refers to announcements by the rating agency S&P, common stock price movements in reaction to poison put provisions, and to their effect on stock prices over time, in order to assess the efficiency of the stock market environment to the financial information. However, anecdotal evidence suggests that the reasons behind price movements might be more complex before the announcement of the poison puts issue or the S&P announcements about the S&P's comment. Norton and Pettengill's results (1998) indicate that poison put provisions are not significant in terms of price movements.

Hence the covenant provisions in poison puts may not have an information asymmetry effect on the firm's price valuation. However, the result proves significant for equity valuations under S&P announcements of event risk covenant ratings, rather than for effect of the poison put setting.

Technically speaking, a firm's valuation and/or its debt and equity valuations might be changed when information is revealed by the covenant and other similar contractual agreements. Any party involved in the decision of the firm and its investors can renegotiate the covenant features prior to the investment decision. The optimal decision can be pre-determined by the efficiency of the investment setting. That is, the maximized firm's valuation can be effectively described as the efficiency gains from renegotiation exceeding the total cost of information acquisition and renegotiation.

The above results are almost in parallel with Myers and Majluf's (1984) proposition. The information revealed by the covenant or its design negotiation process form part of the initial information disclosed to the general public about the ex-ante valuation of the firm.

2.3.2 Agency Theory

As identified earlier, agency problems arise when ownership and control separate, such that management no longer works on behalf of shareholders, when in fact managers should ideally aim to maximize shareholder profit. However, the conflicts of interest between the shareholders and the managements result in agency problems, which are hard to resolve and typically do not have a perfect remedy. This thesis takes up these contradictions in an effort to extend the concept of agency problem to encompass the conflicting interests between shareholders and bondholders. Shareholders generally refer to major equity shareholders with voting rights in this thesis and have capability to hire agents to act and manage the company on their behalf and best interest.

Agency problems have received comprehensive attention in previous literature. In terms of valuation, Dailami and Hauswald (2003) point out that covenants can reduce agency costs and improve a firm's value, and consequently, debt valuation. Any debt covenant that could prevent agency problems would certainly help debt investors and could potentially reduce risk premiums or spreads which are supposed to compensate debt investors for added corporate governance risks. Dumitrescu (2006) in his work on agency problems comments on the positive effect covenants have on debt valuation. Paglina and Mullineaux

(2006) indicate that the covenant's ex-post and ex-ante functions could prevent agency problems in advance. Fan and Sundaresan (2000) investigate equity and debt holders' conflicts, modeling covenants to prevent dividend payouts, which could deepen the conflict of interest between the principal and its agents, including debt holders' interests.

Paglina and Mullineaux (2006) find that the attachment of financial covenants in bank loans is dictated by the need to control agency problems. Their main assertion is that covenants act as a pivotal tool in balancing the costs and benefits of the loan contract. Their examination of 238 large bank loans consisting of 28 different financial covenants shows that the use and restrictiveness of the covenant is affected first and foremost by potential agency problems and information asymmetries and to a lesser degree by incentives to monitor and growth opportunities.

Consistent with research findings by Bradley and Roberts (2003), Paglina and Mullineaux's results (2006) coincide with those in the Costly Contracting Hypothesis by Smith and Warner (1979). Paglina and Mullineaux (2006) find that firms with high growth opportunities or transparent information are less likely to include very restrictive covenants that may otherwise impede valuation assessment. Paglina and Mullineaux (2006) find that covenants are more likely attached as ex ante clauses rather than ex post, meaning covenants are more likely to restrict aggressive behavior of shareholders, resulting in mitigated agency problems in the view of bond holders without voting rights.

Fan and Sundaresan (2000) show that cash flow based-covenants minimize agency issues. They test using debt equity swaps and strategic debt service,

showing that cash flow based covenants lead to a reduced optimal dividend level for equity holders. Equity holders would prefer to compromise and reinvest dividends to prevent premature liquidation or default, such that both bond and equity holders would benefit. In other words, the borrower may seek to change dividend policy and issue equity in order to prevent premature liquidation or renegotiation, as defined in the covenant.

According to Fan and Sundaresan (2000), because equity holders unrestrained by cash flow based-covenants would be entitled to larger benefits, they would also prefer liquidating their stake in the firm or assets and reinvesting it in more profitable ventures. In the case of debt covenants, equity holders would attempt to reduce dividend payouts to avoid costly forced liquidation. It may also force equity holders to cancel dividend payments entirely in some cases. This results in reduced agency problems as equity holder and bondholder benefits become more balanced.

Ho (2003) suggests that the protection of the rights of minority shareholders could be one of the greatest forms of agency problems in China, as many Chinese enterprises are still controlled mainly by the Chinese government. In this case, the major shareholder, namely the Chinese government, has the authority to make all the decisions, whereas the company management would probably not be able to perform its fiduciary duties on behalf of minority shareholders.

The above situation was more explicit before 2005, when many Chinese enterprises were still majority owned by the Chinese government under the communist ownership system. Even if these Chinese companies became publicly

listed, the government would still continue to hold a majority stake (Yang & Yurtoglu, 2011).

Despite efforts since 2006 to reform and transform the state-owned enterprise system, pre-2005 empirical examples continue to provide insight into China debt holders. From the perspective of China debt holders who share some features with minority shareholders of Chinese enterprises, protection from agency problems and enhanced corporate governance would no doubt be beneficial.

Ho (2003) observes that individual ethics and corporate cultures can improve corporate governance and, theoretically, minimize agency problems. He deems the current environment in China insufficient to deal with investor protection, arguing that current regulation and restrictions will only lead to results of “form and not substance”. According to him, many Chinese companies merely adhere to restrictions and laws and do not actively seek to prevent fraud and protect shareholders rights, which is the key to maintaining ethical behavior.

Having said this, minimum rules and laws are evidently required to provide a model for companies to follow. Ho (2003) points out that when ethical standards are low, more laws and regulations are needed. However, he also criticizes the existing Chinese law system for lacking in providing the necessary support and motivation for companies to adhere to the regulations. In fact, Chinese companies not only deviate considerably from standard principles but it is also likely that laws might not be revised fast enough to keep up with the rapid growth of economic change (Ho, 2003).

It is precisely because there are no easy solutions to economic law issues in China that there needs to be a more specialized agency explicitly designed to

improve the agency problem. Its role would be to scrutinize the actions of companies and immediately fix any errors or loop holes in the law. Dailami and Hauswald (2003) suggest that bond covenants and the regulatory environment of the host country, in this case China, could act as a complement to an insufficient legal framework in certain areas. Covenants are believed to help resolve agency problems arising from conflicting agendas between management and shareholders and act in the interest of debt investors in Chinese enterprises.

An important upshot of the agency problem is reflected in the imbalance between employee pay and company performance. It is not uncommon for company directors of Chinese companies to receive salaries that are low compared to the high company earnings. This is a reflection of their low standing within the company as a whole, even though their job involves working hand in hand with CEOs, who might make decisions detrimental to shareholders. This leads to a situation where the hired agents and management are working towards their own selfish interests to gain a share of company profits. Towards this end, they may engage in aggressive investments to maximize their bonus or profit sharing payout. Consequently, debt holder interest would become a low priority and debt holders would also not be able to share the profits earned by management.

Ho's (2003) solution to the above problem is to align interests, by first matching director pay with company performance. This can be done by offering directors share options, which is common in western countries. Directors will thus be able to "cash in" on any increase in share prices as their options become "in-the-money". Despite how efficient it sounds, this is not a foolproof solution. In the west, for example, there are various cases where managers manipulate information in order to obtain share options before the release of good news, allowing them to benefit substantially from the public announcement of information. This solution may then give rise to other problems. In acknowledging this weakness, Ho (2003) admits that the lack of stock options in China may be

good thing, as it reduces the chance of earnings manipulation, though whether this is pro or con in resolving agency problem is unresolved.

According to Ho (2003), Chinese companies are often able to get away with unethical practices that would be condemned in western countries. He attributes misconduct to the absence of fear of consequences. Whereas the potential costs are low, as regulation and enforcement in the Chinese judicial process are inefficient, potential returns are very high.

Given the inefficiency of government solutions, this thesis points to the potential function of covenants as a healthy antidote to the agency problem and loopholes in corporate governance. Moreover, covenants might also lessen the need for litigation, which is typically avoided by investors already reluctant to engage in legal battles, by enabling daily operation to carefully incorporate the ideals of corporate governance.

From the above discussion it becomes clear that corporate governance plays an important part in agency problems. Wealth transfer from debt holders to equity holders might take place easily in the absence of veto rights to defend against the aggressiveness of corporate investment actions. However, concentrated ownership might not be entirely detrimental when it comes to firm profitability.

Nguyen (2006), for instance, refers to ownership structures as a vital part in Japanese enterprises, where ownership concentration in Japanese firms is shown to increase firm profitability. This is especially the case when firms are independent. However, if firms independent from crossed structure holdings on

the one hand enjoy higher accounting profitability they might also suffer from stagnation in their market value due to ownership concentration. In short, few large shareholders might lead to visible profits but this structure also accrues additional costs not easily identifiable in an accounting balance sheet.

Barring the statement that ownership concentration can offset the risk of expropriation from controlling shareholders, Nguyen's research findings (2006) above are otherwise consistent with Ho's (2003). Specifically, Ho shows that ownership concentration may lead to insider trading, such that firm owners will treat the interests of outsiders as either secondary or irrelevant. When ownership is thus concentrated, owners may lack proper corporate governance, leading investors to gradually lose confidence in the company. This loss of investor confidence might in turn reduce the likelihood of increase in the firm's market value.

Regarding China, many Chinese firms are either state or government owned, partially or entirely, and might suffer from agency problems of a slightly different variety. Many top employees in Chinese firms are state appointed, which is to say they are working in the interest of the government, not equity holders.

Ho (2003) shows that state owned enterprises have political and social obligations, which sometimes result in conflicting objectives. One example is when state owned companies refuse to lay off redundant staff in keeping with the state or government objective to maintain a low unemployment rate. However, retaining staff comes at the expense of profits - cash flows which might be used to repay debtors by reducing borrowings and/or buying back their debts through capital markets. Further, the government may impose limiting restrictions on

state owned companies when they create new laws. Since the objectives of companies differ from political objectives, the government has to maintain a balance between achieving growth and protecting social welfare.

According to Ho's research findings (2003), firm performance tends to drop when China state ownership increases. One solution might be to require companies to lessen their ownership by selling their stake to private investors, taking care to prevent the shares from being bought by the same investor. This would be important to monitor because, as discussed previously, increase in ownership concentration increases is accompanied by stagnation in firm value, as expropriation costs increase.

Xiao's (2005) "change of control" action echoes the ownership structure argument to reduce agency costs. Specifically, "change of control" suggests that releasing a firm from state ownership will improve productivity and reduce redundant employment thereby increasing profitability. Like Ho, Xiao's argument is based on the notion that it is state ownership that renders SOEs inefficient, which is why a change of command, or change in ownership, causes profit to increase.

The rationale Xiao (2005) provides for why a company might be motivated to change ownership in an effort to improve performance is enumerated below.

1) Managerial control refers to the agency problem of unaligned interests between various stakeholders. Managers of state owned enterprises lack incentives to increase the share price or improve company performance.

However, once ownership changes hands, particularly from state owned enterprise to private ownership, the new owners will aim to maximize profits.

2) Another identified problem lies in political issues of state owned enterprises. A change in ownership would help the political view and agenda of the government, as it would allow the government to focus on the political agenda rather than the profitability of state owned enterprises. This would enable the company to be less affected by political interference.

In the case of Chinese enterprises, change of control is obviously an area to which debt holders should pay heed. Given the fact that there are thousands of SOEs waiting to be privatized, any debts issued by those enterprises could have their valuation reflected through the privatization process (Yang & Yurtoglu, 2011). Covenants could be important in identifying issues related to change of control, and to prevent overly aggressive behavior in state owned enterprises.

Agency problems and corporate governance are obviously important aspects in financial theory. However, some of the key areas pertaining to the current discussion that China needs to monitor and resolve are laws regarding creditors' rights towards the aim of improving Chinese corporate credibility. There are many ways China can improve the corporate credibility of Chinese firms. Ideally, firms should self-regulate, though the financial market setting down clear rules would be a good start. Covenants could play an important role when self-regulation is less than satisfactory and/or external regulations or interference is not well developed.

Contracts are another area plagued by agency problems, something that Eisenhardt (1989) describes as agency problems in an organizational behavior environment. This thesis locates the relationship between contracts and agency problems within the context of corporate governance and within contracting between the contractor (equity holders) and the agent. In the latter case, the contractor could be the firm that borrows capital from the financial markets. The agent represents the firm and executes the contract agreement between creditors and borrowers on behalf of the firm.

Beyond contracts, ripple effects of agency problems in financial contracting are evident in the area of predation. Bolton & Scharfstein (1990) identify the connection between predation and agency problems, and analyze the optimal financial contract in light of a predatory threat. Their central argument is that agency problems in financial contracting can give rise to rational predation. They find that cash rich firms or firms providing funding as creditors could drive financially constrained competitors out of business. This phenomenon is also observed by Fudenberg and Tirole (1986) who observe that agency problems between creditors and the firm can result in financial constraints inducing predatory behavior by rivals in the form of creditors. In short, any financial contract that minimizes agency problems maximizes a rival's incentive to prey.

The optimal contract, as described by Bolton and Scharfstein (1990), balances the benefits of deterring predation and mitigates incentive problems. It would be similar to an optimally structured covenant in terms of how it constrains the agency cost but balances the opportunity by relaxing financial constraints.

The growth of a firm and its business investments could directly affect the valuation of the firm. Nash, Netter and Poulsen (2001) consider the costs and benefits of restrictive covenants. Firms with growth opportunities are likely to avoid strict covenants that constrain investment flexibility. As observed in anecdotal evidence, dividend and debt issuance constraints are often not included in debt covenants.

Anecdotal observation also suggested that the balance between agency problems and a firm's growth opportunity, which determines the covenant structure, could lead to over or under-valuation of the firm. This also includes valuation of the firm's security holdings, i.e. firm equity and debt.

2.3.3 Financial Distress

This thesis examines the impact of financial distress on China debt covenants, the recovery rate, and financial distress situation. The reviewed literature provides a picture of various ways a firm might deal with impending financial distress and with situations arising after having entered financial distress.

Protection from financial distress is a well-recognized problem in western societies. When companies go into financial distress, the law and legislation should provide a safety net to protect debt investors. However, emerging markets such as China have yet to develop regulations and laws that can effectively enforce recognized borrowing standards based on well-defined practices. To avoid investing in a potential financial distress trap, analysts tend to look for signals of financial distress risk in a firm's capital structure and operational health.

Erickson and Trevino (1994) provided the rule of Pecking Order Theory, where firms follow similar patterns and practices to utilize the best source of capital borrowings. This current thesis does not deal with Pecking Order Theory, but indicates that any firm following the Pecking Order could reduce excessive leverage and borrowings, and thereby minimize the possibility of financial distress. Chang and Yu (2003) emphasize that firms operating with efficiency and sufficient liquidity could provide the firm with lowered borrowing premium, which would also reduce the possibility of financial distress.

As much as being a result of a firm's internal financing decision, financial distress can also arise from mismanagement of a firm during unstable market conditions. According to Bishop et al. (1992), the Trade-Off Theory refers to operating or business risks incurred by using debt leverage during an imperfect market condition. The financial decision would fully reflect risk exposures by the firm. Hence, the firm's financial risk acts as a substitute for the risk that the manager is taking in the firm's debt financing decision. However, the optimized structure would allow a certain degree of leverage for consumption of additional benefits in business investments (Bishop et al., 1992). Some small businesses tend not to incur a large percentage of leverage because it increases business risk and may get out of control when there are downturns in the economic cycles.

Business risks and financial risks can be explained by referring to the pro-forma income statement (Bishop et al., 1992). Within the income statement, the net operating income (NOI) or earnings before interest and tax (EBIT) are earnings that are distributed to debt and equity holders and/or proprietors and the government in the form of tax. NOI or EBIT is related to the investment decision in terms of the level of sales and their operating costs, and is considered to be a business risk function. The financial decision, however, is considered to be a

financial risk function, as it affects the net income and coincides with the NOI. Both risk functions are tolerated by the firm's management decision. As such, working capital should be evaluated as part of the financial decision making process to avoid any kind of business risk and/or financial risk resulting from the chosen operating environment (Bishop et al., 1992).

Working capital management is studied by Weinraub and Visscher (1998), who look at the relationship between aggressive and conservative working capital asset and liability management. Their study reviews ten industry sectors including petro-chemical, steel, and transportation industry sectors. They find that aggressive working capital asset policies are normally balanced by conservative working capital financial policies. From a commonsensical vantage, the research findings are reasonable given that matching risk principles could reduce risks associated with an aggressive choice of financing decisions. Consequently, this also minimizes the chance of financial distress and any extreme cases of bankruptcy, which will be discussed in the next sub-section.

Other financing options also play a part in the possibility of financial distress. Erickson and Trevino (1994) find that with the leverage condition, shorter term financings, such as leasing, could substitute long term debts and possibly increase the growth rate of a firm's asset values. However, there is statistical evidence indicating that financial distress could be higher under such circumstances. Also, off balance sheet financing, such as leases, are considered to be an important source of finance for smaller firms, though these are not associated with higher credit risks.

The financing need and capital structure is dominated not only by liquidity constraints, but also a firm's financial and business strategy. Khanna and Tice's (2000) study demonstrates the responses of incumbent firms against Wal-Mart lead competition. Their research illustrated the relationship between the financial distress and firm variables. They found that capital financing was considered to be one of the decisions that incumbents used in their strategies to fend off Wal-Mart's entry. This highlighted the fact that in practice, capital structure might also be used as financial strategy in the management decision making process.

However, there is still no evidence as to how much the optimal financing structure applies in different market conditions. As for the debt covenants, those with the ability to control the finance structure of the firms are able to influence the valuation of the credit spreads. This would ultimately determine the firm's risk appetite and, corresponding to the level of leverage, also the likelihood of the firm going into financial distress.

Aside from factors directly related to financing, past literature has often discussed financial distress together with corporate governance. Elloumi and Gueyie (2001) have studied the relationship between financial distress and corporate governance in the context of Canada. The corporate governance characteristics include the Canadian board composition, board size, CEO-board chair duality and the audit committee decision. Their study indicates that board composition explain financial distress beyond financial indicators.

Purnanandam (2007), in a study on financial distress and its effect on corporate risk management, examined a sample of 2,000 firms, and concluded that

financial distress induces firms to hedge more. His results indicate that good corporate governance incentivize proper hedging.

Ho (2003) demonstrates that good corporate governance should mitigate the possibility of financial distress, thus improving bond pricing. This would improve information sharing, which in turn would improve public understanding of the company and confidence in the company. Potential effects include an increase in share price and benefits to bond pricing.

Nash, Netter and Poulsen (2001) suggest that more stringent covenants could be used when a firm is in financial distress. This is consistent with Paglia and Mullineaux (2006) who state that the ex-post and ex-ante functions of a covenant are used to monitor and control management in order to prevent further deterioration. Rather than merely a contractual relationship between a firm's bondholders and shareholders, covenants are more implicitly applied to the framework of managing the firm through the hardware that was mutually implemented at the outset.

Nash, Netter and Poulsen's result (2001) is supported by their case study findings where debt securities with a lower credit rating or more inferior credit matrix would have more debt covenants to go with the security. Nash et al. (2001) also add that if the so-called self-control was too excessive, it could cause the "self-destruction" of the firm when applied at a time of financial distress. This is due to the firm having to forfeit investment opportunities when constraints become too overwhelming. If the above were true, one could argue that covenant structure might well be a central determining factor in a firm's future growth opportunity.

However, Nash et al. (2001) could not find evidence to support the hypothesis that firms with positive investment opportunities usually have fewer restrictions as required by covenant settings. This might be the case as restrictive covenants such as negative pledges, restriction on merger, poison puts against event risk and other covenant limitation, could have been applied in the same way as firms lacking such growth opportunities.

The actual reasons behind this result depend on whether there was any compromise between the firm's debt holders and the equity holders before the covenant took place. Nash et al. (2001) used a sample comprising of 763 bond contracts issued between 1989 and 1996, sufficient to cover the boom and bust cycles of the economy. The sample universe was also large enough to cover the debt instruments from speculative grades to high quality investment graded debt instruments. However, results from the research could nevertheless be questioned for their validity given that the sample could be from one specific country and exposed to the same risk.

Garleanu and Zwiebel (2003) claim that debt provisions under their agreements could be renegotiated, mostly involving the relinquishing of rights, namely covenant waivers. In addition, the related effects between asymmetric information and the cost to acquire information were considered when gauging covenant effectiveness.

The most common conditions identified by Garleanu and Zwiebel (2003) are based on major monitoring variables including but not limited to the firm's net worth, working capital, leverage, interest coverage, and cash flows. Managers

could transfer the firm's wealth by increasing their involvement in riskier investments to generate higher profit sharing and dividend payout.

Over investing in ex-post investment and ex-post incentive is the main focus in the study by Garleanu and Zwiebel (2003). Debt holders can learn about effective information but at a cost, where ex-ante information could be shared under the condition that the firm's valuation could be overestimated. Futures decisions are allocated with the information acquisition rights such as ownership rights and control. The contract would be rather incomplete without such rights. The rights should be allocated to minimize inefficiencies due to distortions in ex-ante investments.

To evaluate the debt pricing of the firm when under any financial distress conditions, the reduced-form model for valuation could be used. The model was first proposed by Cathcart and El-Jahel (1998), and is similar to the model by Paglia and Mullineaux (2006) which factors in the barrier of valuation, or default barrier. Extended by Lo and Hui (1999), the reduced-form model takes into account default occurrence at any time. Default occurs when some signaling process hits a lower constant default barrier. The model assumes that the signaling process for each firm determines the occurrence of default rather than the value of the assets of the firm. The signaling variables and interest rates, could be used to determine bond prices or credit spreads.

The model by Lo and Hui (1999) extends previous studies and reworks models by Black & Scholes (1973) and Merton (1974). In their study the structural model approach is treated by a European put option, with a call option on corporate asset values and a strike price at corporate liability. That is, a firm's asset value

becomes insolvent when it is less than the firm's liabilities. Using this time series barrier, this valuation technique could monitor whether the firm might be sliding into financial distress from time to time. However, it is possible that firm might already be in a distressed condition even before the valuation barrier is breached or corporate asset values fall below the bankruptcy threshold. The Lo and Hui model (1999) was inspired by the Black and Cox model (1976), where corporate events are assumed to occur at any time.

For their part, Lo and Hui (1999) modeled their study on the reduced form model, which emphasis the time span of default. Their model identifies the time line which would cease somewhere between the hazard and specified payoff till default, and approach that was adopted by Artzner and Delbaen (1992).

Nash, Netter and Poulsen (2001) evaluate the pros and cons of restrictive covenants, specifically how they could prevent the firm from falling into financial distress. The covenant is intended to prevent equity holders from taking actions that reduce the firm's value that could include the valuation of debt. This is also relevant to agency problems.

Nash et al. (2001) described a situation in which an equity holder issued a call option that allowed debt holders to buy the firm at an exercise price equal to the price of the debt. They also considered the scenario of diluting the debt holders' wealth by issuing more debt and at a higher seniority. This scenario might reflect Pecking Order as suggested by Erickson and Trevino (1994). The equity holders could always enter into financial distress and postpone bankruptcy, which would be gambling the firm's wealth to prevent financial distress. It is this way that the

covenant monitors the necessity to adjust the cost for higher benefits and values of the firm. However, high growth firms will tend to avoid restrictive covenants.

Bharath, Sunder and Sunder (2005) observe that accounting quality could be related to the price and non-price features of loan contracts at the time of origin. This finding is consistent with other research suggesting that borrowers with a lower accounting quality could face substantially higher loan spreads, transaction costs, and stricter non-price contract terms for loan maturity. This is a vicious cycle that will put a lot of stress on firms when they lack the ability to borrow.

Bharath et al. (2005) use unsigned operating accruals in their standard debts. These debts also appear to be consistent with pricing accounting quality in terms of their limited risk information and incremental to sources of distress risk before it goes into default. In particular, financial research analysts were not only monitoring the accounting results, but also the quality revealed from the information. This relationship is consistent with the work of Chang, Dasgupta and Hilary (2003) who suggest that information such as accounting standards could influence the valuation of the firm and structures of the firm's capital.

There are two main types of accounting standards that are widely recognized and used to distinguish the quality of disclosed information. Known as the U.S. GAAP and non-GAAP accounting standards, these standards play active roles in the accounting setup of debt contracts, such that the quality of dissimulation could affect the cost of debt and contract terms. Some examples of operating accruals include the firm's earnings operating cash flows. Abnormal operating accruals are normally stated as regulatory and legal conditions.

Bharath et al. (2005) state that unfavorable loan contract terms could lead to a higher magnitude of abnormal operating accruals. Therefore, firms using unfavorable loans would generally have high spreads. This will increase the possibility of firm distress. Upfront fees are about two to three times higher for firms placed in the lower quintile in terms of their disclosure accruals. The highest quintile of firms could also reduce specific control variables by some marginal amounts. For instance, asset maturity could be reduced by one month on average and the collateralized probability could be reduced by up to 13 per cent. Economic and other econometric variables also lead to different outcomes.

Bharath et al. (2005) also indicated that superior and inferior accruals are not significant in determining the cost of the bank debt. The lowest and highest quintile accruals were analyzed and results indicated that the quintile was exposed to similar spreads at extreme ends, unlike those in the middle that were exposed to the most favorable loan terms and features. What this proved is that the direction of the accruals is independent of the cost of bank debts.

Based on the reviewed literature, the effect of covenants protecting against financial distress can be viewed as two-fold. Erickson and Trevino (1994), Chang and Yu (2003), and Bishop et al., (1992) generally share the same view of firms following the Pecking Order theory, that is preferring to use the cheapest cost of funding in imperfect market conditions could minimize liquidity risks and subsequently financial distress.

Weinraub and Visscher (1998) and Bharath, Sunder and Sunder (2005) examine the impact of financial strategy and accounting quality on financial distress. Their study is consistent with that of Nash, Netter and Poulsen (2001), that covenants

relate directly to the growth of the firm and have the ability to restrict it if applied too stringently. The results on debt valuation are mixed, and would ultimately depend on the degree of restrictiveness of the covenant as perceived by the investor.

Financial distress could also play a significant role in valuation theory. Distressed firms might choose to trim dividends significantly in order to prevent dividend constraints from becoming binding (DeAngelo & DeAngelo, 1990). That is, the covenant would restrict dividend payout before debt holders can make a claim on the firm's cash flows as dividend payouts.

Building on the standard structural model, Galai, Raviv and Wiener (2003) illustrate the difference between default and liquidation, or re-organization on the valuation of debt securities. The stated variables count the number of weighted distress events, which are defined as any period when the value of the firm's assets is below a predetermined distress threshold. The length of the grace period from past distressed event is derived from its distance to the present based on the seriousness of the distress event. The relationship with asset volatility, credit spreads, and bond values also showed that credit spreads and bond values increase with asset volatility. Galai et al. (2003) make a clear distinction between default and liquidation.

2.3.4 Bankruptcy Costs

Bankruptcy refers to an exchange offer for delayed interest, missed coupons and principals, maturity extension, debt equity swap, haircuts, etc. The condition is

also reflected in cases of insolvent firms. When the asset value falls below a certain limit or threshold, borrowers strategically cease meeting the contractual coupon obligation and service debt until asset values return to a point above the threshold (Fan & Sundaresan, 2000).

To debt investors facing the risk of potential bankruptcy, extra assurances to ensure the safety of investing in Chinese global debt instruments is required. Covenants could act as an early warning tool for debt investors and provide a proper assessment of the credit background. This would be evident in extreme circumstances, where even debts with municipal or provincial government support are not always guaranteed.

The importance of covenants is evidenced in China provincial enterprises and Government Sponsored Enterprises (GSEs) in the U.S. Despite being government sponsored, the GSEs continue to remain vulnerable especially if the government halts funding or there is poor governance control by civil servants who lack motivation to safeguard company assets. However, investors would be more secure with the covenant agreement between debt investors and the GSE. Fan, Titman and Twite (2003) have shown that financial culture and firm management behavior varies widely across countries. Given this discrepancy, recognizing cultural difference might help an investor investing in a firm from a different financial background. Smith and Warner (1979) investigated protective covenants that restricted firms with lower debt and therefore could have implied lower risks. This means higher valuation of firms and consequently a higher valuation on their debt instruments. Asquith and Wizman (1990) examined 65 Loan Borrowing Obligations (LBO) and their effects on covenants through risk levels and potential default probability.

The liquidation and bankruptcy condition was much better defined by a quantitative study conducted by Kuruppu, Laswad and Oyelere (2003). The liquidation model is used to monitor and classify firms that are going into liquidation. It is considered one of the best estimates due to its high accuracy and low Type 1 statistical error, meaning there is less error in misclassifying a failed company as non-failed.

Titman and Wessells (1988) indicate that bankruptcy costs are a major consideration in the financing decision. Chinese enterprises proactively seek to avoid costly bankruptcy costs by minimizing financing costs. Merton (1974), Black and Cox (1976), and Leland (1994) incorporated quantitative approaches in valuing bankruptcy probability and recovery rates. This thesis investigates the major determining factors of the debt covenant and how those risk variables could provide additional insight into bankruptcy risk and into their effect on the global debt valuations of Chinese firms.

Schwartz (2005) maintains that business bankruptcy laws should reduce the costs of debt capital. When creditors receive a higher payoff, costs are reduced, and as firms' cost of capital decrease, credit markets are able to fund more positive value projects. The firm is also better motivated to do so. Following a similar logic, bond covenants may reduce the debt capital costs in a manner similar to that of bankruptcy laws.

The theory's second claim maintains that firms should be allowed to decide on an optimal set of bankruptcy procedures in their lending agreements and have the freedom to contract for the procedure believed to be best suited to them. An insolvent firm may unduly delay its entry into the bankruptcy system, and may

choose the procedure that maximizes the managers' private benefits rather than return to creditors. This bankruptcy contract would alleviate such agency costs related to the bankruptcy process.

Through quantitative models, Francois and Morellec (2002) show that leverage decreases, as more constraints are included in the renegotiation process. In this case, debtors would enjoy greater bargaining power. Shareholders have the incentive to default to maximize the manager's self-interest, which would lead to higher credit spreads, reflecting the higher risks involved. Francois and Morellec (2002) demonstrate that shareholders' incentive to default is influenced by the ability to renegotiate debt contracts and the possibility to file for Chapter 11. Credit spreads typically increase as the possibility of early default by debt renegotiation increases.

Lo and Hui (1999) also consider the approach by Cathcart and El-Jahel (1998) in their work. Their work is related to searching for corporate valuations that reflect their potential probability of corporate bankruptcy. The outcome was that all those approaches were integrated into the main determinant of default rather than the asset that related most to value. The valuation barrier would indicate that bankruptcy or default of the debt instrument occurred at the moment where volatility might have reflected the level of leverage over time. The critical beta, which represents the level of deviation from the credit spreads, is the signaling variable that could price the firm's debt term structure. The study also suggests that increases in spread and the beta could occur with defaultable debts and result in an upward sloping to humped shape term structure.

Covitz and Han (2004) use bond recovery rates to explore the default of corporate debt. Research analysts could look at bond recovery rates to assess the possibility of recovery when the corporation goes into bankruptcy. The recovery rates measure debt pricing at default as a percentage of par value, which is normally at or below 100%. This may indicate that bond recovery rates could help determine bond valuation pricing models. Bond covenants that protect against financial distress may include clauses that use recovery rates to measure company performance. As such, research analysts are able to perform valuation assessments to that credit accordingly.

Covitz and Han (2004) name three main frictions/conditions that would lower the recovery rates for credits at default to less than 100%. The conditions include:

- A default in corporate debt after the firm becomes insolvent.
- Discrete jumps on the market value of firm's assets relative to its liability level (Asset/Debt ratio).
- Increasing costs to heighten the cost of the firm's bankruptcy.

These statistical models can be used to identify valuation at time of a corporate default event. But covenants can mitigate risks to corporate defaults and maintain the recovery rate at default (RAD).

Taking into account bond covenants, Covitz and Han (2004) further suggest that nonlinear relationships are linked to the condition of default. The explanatory variables such as different firms, industry and other macroeconomic policies could be nonlinear with default and recovery rates.

From the balance sheet and income statements, the financial ratios and scales that can be constructed include:

- book leverage ratio
- asset/liabilities
- liquid asset ratio
- tangible asset/total assets
- profit margin
- income before interest
- taxes
- depreciation
- amortization

Apart from the above, specific variables that could affect recovery rates at default might include regulatory and fraud. The result indicates that default delays and jumps in valuations could drive recovery rates below 100%. The macroeconomic explanatory variables are nonlinear with the RAD under Covitz and Han (2004) studies.

These financial constructed factors by Covitz and Han (2004) are often seen inside the covenant and can be part of the financial ratio and statistics that research analysts read for credit bond valuation and risk assessment.

Similar to other statistical models accessing bankruptcy valuation, Elizalde (2003) assesses credit risks through the structural approach with reference to the Merton (1974) model and the first passage models based on Black & Cox (1976). The two types of default depend on the cyclical default correlation and the contagion effects. Whether it is the structural or the reduced form approaches, default occurred at maturity or at any time up until default.

Silva and Pereira (2006) deploy the rating credit method as a base for rating covenants. The rating credit model, which includes dynamic default rate or recovery rate in its equation, is a method used to value bonds. Their experiments used finite maturity corporate bonds to adjust for value differences arising from maturity differences over time. They made several general assumptions about the characteristics of the bonds sampled, such as:

- The inclusion of covenant violation clauses - where no payments of debt issues are to be made immediately after their issuances, and when the debt instrument valuation exceeds the limit of the debt principals.
- The limitation of debt principals would reflect the true value of the debt (including amortization) and increase the coupon rate in face of any covenant violations. This would occur especially when the debt instrument valuation is greater than outstanding debt principals.

-
- Valuation of equity, tax benefits, bankruptcy costs and firm leverages are also taken into consideration.

Silva and Pereira (2006) refer to studies by Merton (1974), who uses the structural approach to price corporate debt instruments, and Black & Cox (1976), who use the default variable as debt maturity life rather than contractual life. Basing their studies on these literatures, they also include Brownian Motion as part of their valuation framework and test the rating credit model under two scenarios. The first scenario is when a firm's rating was downgraded and the second scenario is when bankruptcy proceeded after the re-rating. Their test is comparable with the model used by Bhanot and Mello (2006), which is in the absence of default at maturity and the valuation of the debt could be over-priced.

Building on these studies, Silva and Pereira (2006) chose to pre-define the barrier level used to value firm equity. Therefore, any violation of the covenant and barrier level could trigger reconsideration of the rating based covenant. This is why Silva and Pereira (2006) introduce new inputs, such as the costs of bankruptcy, in addition to the Merton (1974) models to bring more depth to their research.

Jarrow and Purnanandam (2004) implement a reduced form approach to consider credit risks in a continuous timeframe. The four main aspects identified were:

- The default occurs before the insolvency where the firm's net assets are negative.

-
- The deadweight losses that were incurred in the default event, i.e. third party, cost legal fees.
 - Liquidation and opportunity costs.
 - Agency costs.

Any of these aspects could maximize the value of equity in the setting, assuming that the firm is risk averse and has a downside loss utility function.

Teixeira (2005) tests the structural models to see if they give the right debt pricing. She identifies that Fan and Sundaresan (2000) give the most accurate prediction on debt prices, whereas the models of Merton (1974) and Leland (1994) over price the debt prices. Teixeira (2005) indicates that rating, maturity, and asset volatility, all affect the predictability of spreads. She finds that errors occurred based on the firm specific and term structure variables.

Teixeira (2005) measures the prediction errors in terms of price, yield, and spread. She came up with structural models with risk elements as a function of firm characteristics and measured them to see how well they fit according to their prices and spreads. The model includes business risk functions such as asset volatility, and leverage. However, the reduced form model related to the reliance of firm values on probability. Teixeira also states that the introduction of early default, taxes, bankruptcy costs and the parameter of bargaining power in the Leland and Fan and Sundaresan models was a great improvement over Merton's framework.

Covitz and Han (2004) use bond recovery rates to explore the structural valuation of debt instruments. Their research suggests that the main factors of recovery rates are default delays, corporate valuation jumps, bankruptcy costs and economic condition. Those factors could share a nonlinear relationship with recovery rates.

Covitz and Han (2004) identify that the recovery rate at default (RAD) is close to 100% during perfect market conditions. For the past decade, the RAD was around 40%. In imperfect conditions, those so called friction factors caused recovery rates to remain below 100%. Assuming the firm jumps into bankruptcy, the default will increase the expected bankruptcy costs and affect the RAD. Covitz and Han (2004) also include market leverage ratio into different firms, industry levels, and macro factors, for those leverage ratios as explanatory variables. The nonlinear relationship refers to the default conditionality that the default probability would need to justify with the financial matrix of the corporation.

The results of Covitz and Han (2004) indicate that specific information related to the market leverage ratio, such as the firm, industry, and the macroeconomic environment, is significant to the RAD. The fact that bankruptcy cost is also nonlinear is significant. Fraud, industry focus, and profit margin, and interest rates also have a connection with the RAD. Hence the RAD could be high when shocks and depressions affect the RAD.

Intuition also suggests that regulatory matters, such as the U.S. bankruptcy code could affect the time and the seriousness of the RAD. In some cases, firms intentionally delay defaults so as to prevent costs related to default and

bankruptcy. Such costs include litigation involving liabilities, revaluation as a result of regulatory issues, and costs implication from any fraud events.

Once a bond default occurs, the covenants, capital market restrictions, and liens, could affect the firm operation, and to some extent the valuation of the firm. Covitz and Han (2004) find that firm, industry and macroeconomic proxies for the inversed market leverage ratio are positive and significant to the RAD. The effects from the default delays due to the bankruptcy code and corporate valuation jumps could drive RAD below 100%.

Fan, Titman and Twite (2003) researched 11 industries in 39 countries through the period 1980 to 1991. They point out that the U.S. legal system tends to be more favorable for companies that have leverage in their investments. Consequently, higher levels of debt in firm structures are held. Furthermore, bankruptcy law in the U.S. is relatively well defined. Laws such as Chapter 11 allow creditors to have better control on the pledged assets if the indebted firm goes bankrupt.

After the Asian SARS flu epidemic in 2003, many airline companies declared bankruptcy under the bankruptcy law in the U.S. The U.S. airline industry experienced a significant decline in its profitability. Companies ran into numerous problems emerging from gearing, as shown in their balance sheets. Firm valuations declined by more than 80% in some cases. Airlines in the U.S. filed for bankruptcy protection in order to prevent creditors from selling assets of the companies to repay their debt. In some cases, such as United Airlines, the company was allowed to stay in operation and repay debt through its operating

earnings. Such companies were thus able to survive under the distressed financial conditions of that time.

Despite debt investors having limited control when their invested airline company goes into bankruptcy, bond covenants can reduce the impact and could even help debt investors recover invested principals from restrictive activities, cash residuals, pledges and collaterals.

Default can be a result of a firm going into bankruptcy. In the U.S., the purpose of Chapter 11 of the bankruptcy law is to protect the firm's operating environment, and ensure an orderly bankruptcy when the firm becomes insolvent. Academics use barrier of default in their statistical models to try to identify valuation at time of bankruptcy. Recovery at Default or RAD could be a good indicator for those kinds of assessments conducted by research analysts.

Chinese laws may also need to be modified to help protect shareholders interests when a firm collapses. Senbet (1993) has shown that there is a need for an improved bankruptcy process so as to achieve more efficient resolution of conflicts among shareholders. Many firms follow the absolute priority rule where creditors are paid out first, and investors are left with little or no residual value. Senbet (1993) suggests that the rule should not be absolute and that there should be situations where debtors/creditors do not receive priority over equity holders. One way where it may be appropriate is where debtors/creditors lend irresponsibly and recklessly, and the firm has a complete disregard for the rights of equity holders. It is therefore in the interest of analysts to incorporate covenants involving agency problems into valuation.

Aside from the risk factors mentioned in the previous section, debt spread valuation theory also consists of other security specific risk factors. These security specific risk factors are typically associated with interest payments and the principal. These are discussed in ensuing sections.

2.4 Other Security Specific Risk Factors Of Spread Valuation

In a broader sense, when the financial market values corporate debt instruments, it is features such as bond covenants, collateral, seniority, and credit ratings that are being examined. The effects of these attributes on a firm's capital structures constitute an important area of study.

Smith and Warner (1979) note that Asian enterprises are more inclined to adopt value-maximizing strategies. Controls such as protective debt covenants could fix investment policies and reduce incentives for enterprises to raise their valuation on their debts. Smith and Warner's (1979) Irrelevance Hypothesis suggests the use of protection covenant irrelevancy with regards to fix net cash flows, because any gains to the debt holders are losses for shareholders. This compromise between equity and debt holders would become part of the process for the firm when considering the covenant setup to maximize firm values. In particular, when debt holders lend capital to borrowers, they are unable to control how the capital is used. Bond covenants enable debt holders to exert indirect control by presetting the borrower discretion over borrowed capital.

Aside from bond covenants, the bond transcript, which is typically provided by the issuer's lawyer and bond counsel prior to financing, should count among the key pieces of documentation examined. It should always include information such as indenture, resolution, deed of trust, credit enhancement documents, and rating letters. The information described above can also be collected via the preliminary official statement and the final official statement. Underwriters use these statements when selling debt securities to potential investors.

Other security specific risk factors that contribute to debt spread valuation are typically associated with the technical factors of bond instruments, namely bond terms, and with how the bond instrument is structured. The section below is a review of literature on bond indentures, collateral, seniority and credit rating.

2.4.1 Bond Indenture

The debt security indenture is an official contract between the issuer and the debt trustee. The Trust Indenture Act 1939, which governs these indentures under U.S. Federal law, was amended through the Securities Act Amendments in 1990 that includes the Trust Indenture Reform Act (Schwarcz & Sergi, 2007). Some debts are issued according to the issuer and some according to the resolution of the trust indenture. The document should include all actions taken by the issuer otherwise the issuer should be approved to authorize the execution and delivery of the resolution. When the borrower issues bonds, the general resolution allows for the indenture to be continuously improved and amended over time. The debt security indenture specifically protects debt holders. However, the master indenture tends to protect all lenders of the borrowings, ultimately including the debt holders (Schwarcz & Sergi, 2007).

Smith and Warner (1979) show that indentures are sometimes restricted by a set of financial ratios, thus constraining debt issuers from taking certain actions to maximize the firm values. This takes place by applying certain tests to the financial ratio that prevent the firm's debt financing decision from becoming overly aggressive. For instance, indenture agreements may place limits on particular financial ratios to prevent the firm from engaging in mergers.

Indentures can also entitle debt issuers to make certain unilateral actions such as the right to call the debt issue. Vu (1986) tests issuers that have a call option in their debt issues. The issues were classified by four related hypothesis:

- 1) The leverage hypothesis, which is linked to the tax effect, looks at whether the issuer is able to benefit from interest rate tax deductions. Statements should be in the same form, where the issuer is able to benefit from interest rate tax reductions
- 2) The information effect hypothesis - where the firm tries to convey information about the firm's future performance.
- 3) The wealth transfer hypothesis - where the market value of the debt is below the call price in which wealth can be transferred from equity holders to bond holders.
- 4) The restrictive covenant hypothesis is where the call action is to remove restrictive covenants not contained in the indenture of the firm's other debt issues.

The strengths of Vu's (1986) research hypotheses are that they are more or less mutually inclusive of one another. Vu's (1986) research highlights the fact that debt holders definitely benefited from the call when the market value of the debt was below the call price. Furthermore, equity holders were also at an advantage, as the firm could benefit from the removal of the restrictive covenant. The premium on calling the debt consists of the potential minimum opportunity costs faced by the firm (Smith and Warner, 1979).

2.4.2 Collateral

Collateral comes in the form of security to the debt holders. The collateral could be a pledge that is backed by cash or any form of securities such as physical assets or marketable contract agreements. The most common types of collateral used are asset or mortgage backed securities, where the underlying assets and mortgage are used as security (Altman, 2006).

Where pledge and lien consist of the core assets of a company, it would be in the firm's best interest to keep custody of the collateral. However, arbitrage profits and informal reorganization would serve as disciplinary action compelling management to follow the liquidation path that is considered optimal for equity holders. Ideally, debt investors would ensure inclusion of this kind of collateral provision in the indenture, so that in the event of liquidation, asset backed collateral would ensure capital recovery in the event of back-to-back selling of secured assets.

Haugen and Senbet (1988) identify that bankruptcy costs could easily be eliminated under the provisions of covenants and indentures. Collateral would thus provide security to debt holders if the events under the indenture agreements take place. These provisions would be costless to the firm's operation if capital markets are functioning efficiently.

2.4.3 Seniority

The seniority of fixed income securities is a central factor when valuing debt instruments. A senior debt holder takes precedence over lenders and creditors of a lower seniority. Seniority is defined as the priority that the legal claimant holds over the company's cash flows and assets in the event of bankruptcy. Other than junior or senior level of debt, seniority could be classified along the subordination category (Altman, 2006).

Covenants can be used as a tool to restrict newly issued debts from having a higher seniority or claim than existing debt holders. This discourages existing debt holders from making similar claims on the firm's assets before an event takes place. However, the firm's main purpose in issuing senior debt is to reduce cost even in the absence of taxation on company revenue or on saving taxes incurred on interest payments.

Smith and Warner (1979) have tested to see whether issuance of senior debt would alter any aspect of firm values. Their study tries to identify the equilibrium where the interest premium would adjust to yield a normal compensation on the secured security. Anecdotal evidence suggests that the type of security issued by

borrowers could drive market forces. If there is a demand for senior and secured debt security, the firm in need of capital must satisfy the demand of potential debt holders.

2.4.4 Credit Rating

Moody's, Standard and Poor's, and Fitch, all cite that credit rating is the semi-strong form of information recognized by financial markets and authorities to evaluate a company's credit quality. Despite the fact there are various ways of representing a company's credit quality or debt instrument, rating agencies believe that credit quality representations are more or less similar.

There are two major categories of the credit rating classifications:

- 1) Investment Grade Type refers to companies or issuers of a security that have stronger repayment strength.
- 2) Speculative grade type of rating, also called junk grade rating refers to securities issued by financially weaker or companies in-default.

Marais, Schipper and Smith (1989) conducted a study similar to Kaplan and Stein (1990) on the basis that firms involved in leveraged buyouts will experience an observable impact on their non-convertible security return. However, the results did not have any statistical significance. Instead, Marais, Schipper and

Smith's study (1989) found that rating agencies reacted negatively to such announcements, which in turn could affect the debt's returns depending on sensitivity to rating downgrades.

2.5 External Risk Factors Of Spread Valuation - Country Risk

In China and elsewhere, be it country to privately owned enterprise, the history of the enterprise ownership structure has played an important role in how debt spread valuation might be or is affected by debt investors. Today, finance theories use a multi-country or cross-country framework to determine information asymmetry, agency problems, financial distress, and bankruptcy. Specifically, this thesis reviews literature on how debt covenant and China debt spread valuations are influenced by the following characteristics:

- 1) Ownership structure
- 2) Management behavior
- 3) Country policies
- 4) Fundamentals of the country

Aside from these external factors, another key external factor that may have important implications are exogenous events, such as global financial shocks. From empirical evidence, external shocks can impact the spread valuations of bonds through influencing liquidity conditions, investor risk averseness and/or

directly affecting the underlying fundamentals of issuers. As the thesis does not set out to explore these issues in the research objectives, this is open for further study.

2.5.1 Country Risk - Ownership Structure

According to Li, Yue and Zhao (2006), to some extent, ownership structure is related to a firm's financing decision. It has been proven that state ownership is positively associated with leverage, though foreign ownership could be negatively related.

Because globalization allows capital to be efficiently allocated across countries, firm ownership structures today are less stable than before. (Li, Yue & Zhao, 2006). The ownership structure would also be less clearly defined, as various shadow owners through cross holding, special purpose vehicles, and/or indirect ownership could hold a majority interest.

Within the capital finance decision making process, cross holding and mergers and acquisitions may apply only when valuations are likely to improve. In some covenants, there would be clauses that contain a statement restricting cross holding and mergers or acquisitions. In Korea, cross holding structures are known as 'chaebol' and in Japan they are called 'keiretsu'. These cross holding structures are traditionally created to prevent takeovers by alien and foreign investors, and could also possibly lead to higher valuations of the firm (Li, Yue & Zhao, 2006). They seem to work on a private level, but today, where corporate financial management could be used in various ways to gain control of the

company, shareholding structures seems to have evolved in a more dynamic way at the public enterprise level.

2.5.2 Country Risk - Management Behavior

According to Filbeck, Gorman and Preece (1996), human behavior plays a significant role in the decision making process. For instance, certain types of human behavior, such as herd migration and follow-the-leader behavior, provide an explanation for capital financing decisions. They further expand this notion by suggesting that a firm's capital structure may not necessarily affect debt valuation if the market does not act according to the suggested herd migration behavior, which is the norm. Despite its strength the notion has been debated, as the evidence supporting follow-the-leader behavior is generally weak. In reality, this behavior would be likened to finance professionals basing their finance decisions on only one proven strategy. Having said that, it has also been suggested that applying the Filbeck, Gorman and Preece formulation, also referred to as the Adaptive Expectation Hypothesis, could lead to the most efficient outcome.

Padron, Apolinario, Santana, Martel, and Sales (2005) have pointed out that the cost of bankruptcy could limit the advantage of tax. The Pecking Order Theory indicates that the best choice for funding is from internal sources. Companies would have less leverage if they had higher volumes of internal financing, compared to those with a lower level of internally generated resources.

For the above reasons, tax implication is understood to share a strong relationship with selection of debt covenant types preferred by Chinese

enterprises. Other factors like behavior and interaction effects could also play a role in making the decision in debt usage, as covenant types would play a part in restricting debt issuers from meeting their obligations. The Peking Order Theory explains why companies rely on their internal and external funds and shed light on the implications of debt covenant usage for debt investors.

2.5.3 Country Risk - Country Policy

The market situation in China has seen many dramatic changes in the past few decades. Specifically, and more recently, the country's foreign exchange reserves, government special purpose companies, and sovereign wealth funds have all begun playing a very active role in the day to day interactions of corporate investment decision making. Regarding this, Li et al. (2006) observe that banking competition could be associated with short term lending, leading to different informal capital and ownership structures. Theoretically, greater banking competition could result in increased lending to different types of firms, though there is little evidence to suggest that Mainland China enjoys strong competition in the banking sector. Before 2005, banks were controlled and owned mainly by the central government of Mainland China. Today, the same notion is absurd. It implies that any bank at any time would be competing against others with a more or less similar ownership profile, i.e. government owned and controlled, all of which translates to the government competing against itself.

The above discussion draws attention to the control structure of Chinese firms, namely whether government and state ownership can mitigate the credit risks in terms of information asymmetry, agency problems, financial distress, and bankruptcy. Chinese enterprises need to apply constraints and restrictions such

as Change of Control and Merger Restrictions to reduce risky behavior of firms, if they are cross owned by government and state municipalities.

According to Myers and Majluf (1984), management and individuals should possess discretionary information on the firm. The discretionary information would reflect actual assets, and the firm's potential and foundations. The discretionary information could transfer wealth by issuing new securities within an imperfect market setting.

The Information Asymmetry Theory reflects situations where the financing and investment decisions could not be independent, as managers are signaling to the financial markets to reflect the firm's share value.

Variation in legislation and legal systems is considered to be insignificant in the context of financial decision. Anecdotal evidence suggests that firms are able to make better long term investments if they can raise more capital with equity and long term debt (Givoly et al.,1992; Bathala & Carlson,1995).

Fan, Titman and Twite (2003) who examined the major determinants of capital structures across countries and sectors identified commonalities in government administration, transaction costs, tax and legal policies. Results indicated that these aspects were significant in determining the capital structures, and if covenants could influence the capital financing decision, the valuations of a firm would also be influenced by the covenant risk factors.

Fan, Titman and Twite (2003) state the British Commonwealth's Companies Act, 1956 from English law, should be suitable for indebted companies. Given the

stringent legal framework, credits need to go through more legal barriers to make claims on the bankrupt companies. This legal framework could directly affect firm valuation as a whole.

In some emerging countries, such as India for example, the insolvency law has evolved from its origin in English law. The Sick Industrial Companies (Special Provisions) Act, 1985 outlines the pre-insolvency process for distressed companies that apply for remedy (Sarkar & Sarkar, 2005). The Bank and Financial Institutions (Amendment) Act, 2002, enables Debt Recovery Tribunals to distribute sales proceeds towards reducing non-performing assets of the financial institutions. The protection is thus designed for banks not creditors or debtors (Sarkar & Sarkar, 2005).

In India, therefore, the government regulates company takeovers by incorporating Clause 40 into the listing agreement (Sarkar & Sarkar, 2005). The Substantial Acquisitions of Shares and Takeovers Regulations make disclosures of substantial acquisition mandatory. This regulation is intended to prevent the firm's equity transferring ownership across acquirer and underwriter. However, the regulation would be insufficient to prove a clear picture of the ownership transfer if the transaction takes place through an intermediary or special purpose entity.

China reflects a similar legal environment in trying to protect local industries from foreign investor takeovers. There are rules and regulations in preventing majority ownership in sensitive industries such as media and telecom, banking and financial institutions, and oil and gas industry. As a result, the business environment is not highly conducive for foreign investors. Lending restrictions

and asset subordination are common in the Mainland China markets and country policy may not easily identify how these affects firm valuation.

2.5.4 Country Risk - Country Fundamental

Covenants can assume different forms and follow different formulae for varying purposes. Between 1999 and 2002, new technology created a surge in debts in telecommunication companies, particularly after the U.S. Federal Reserve eased rates to historically low levels following the 9/11 terrorist attack. At that time, excess telecommunications capacity was created around the world, motivating companies to expand operations in third generation telecommunications technology. France Telecom experienced tremendous financial burdens in bidding for third generation licenses and building infrastructures. This turned out to be financially unsound and France Telecom had to be nationalized after the company fell short in servicing its debts. Had those covenants in the telecommunication sectors been in place and in good form, debt investors might have been able to recover invested principals from the indebted telecom companies, if not avoid the TMT catastrophe in 2000.

Mitchell (1991) and Morris (1992) have studied the maturity of debt instruments across different countries. Morris (1992) expressed a broader view of firm debt maturity profile, as his work related to each security's individual maturity. Banking regulation could stipulate debt capital requirements within individual jurisdictions. Debt covenant and indenture could play an important role in monitoring borrowing amounts and instruments provision. A similar study by Demirguc-Kunt and Maksimovic (1999) across 30 countries introduces the Trade Off theory,

which was based on capital finance decision. However, the more the leverage, the higher the risk of firm bankruptcy.

Mateus and Terra (2005) examined 1,672 firms in Latin America and Eastern Europe using the cross-country framework of financial ratios including:

- 1) Leverage ratio = $\text{LT Debt} / \text{Book Equity}$;
- 2) Maturity ratio = $\text{LT Debt} / \text{ST Loans plus LT Debt}$;
- 3) Size = Ln (Sales) ;
- 4) Growth = $\text{Book Liabilities} + \text{Market Capitalization} / \text{Total Book Assets}$;
- 5) RoA = $\text{Operating Income} / \text{Total book assets}$;
- 6) Business Risk = $\text{Sales} / \text{Operating Income}$; and
- 7) Tax Effects = $\text{Taxes} / \text{Taxable Earnings}$.

The Latin American and Eastern European markets share strong similarities with the Chinese context. They are also subject to similar limitations in terms of gathering information from a company's annual report and/or from the stock exchange. However, because the tax system in China is arguably far more complex than that in Latin America and Eastern Europe, results from Mainland China are also bound to show some contrast. The determinants could turn out to be slightly different, as policy would apply differently across countries. However, some of the aforementioned financial ratios are still being used in the Chinese context when assessing the country framework. In fact, covenants also apply financial restrictions to check and balance company profiles. Financial ratios are used for this purpose in a study by Mateus and Terra (2005).

China debt could be structured so as to help minimize tax paid by the company. Restrictive covenants could help limit the tax shelter loophole and reduce the gearing of the firm. Better transparency and stronger corporate governance could also reduce the firm's borrowing costs.

Research by Mateus and Terra (2005) indicates that financial variables that functioned as complements in Latin America were supplements in Eastern Europe. The cost of capital and the cost of transaction adjusted towards optimal maturity.

Kai, Heng and Longkai (2006) examine the China financial market, where the government guided bank lending and activities of state-owned enterprises. Their study indicates that China's external market relative to its overall economic growth is not unusual when compared to other emerging countries. However, in a more efficient system, the firm will employ more long term debt.

Similarly, the results of Beck, Demirguc-Kunt, and Maksimovic (2002) show that legal protection and foreign ownership could actually affect the firm's debt holding and observes that foreign ownership could bring in more technology and skills, which would support the firm in operational and business related matters. Also, it was found that short term financing is more suitable for the firm as it provides greater independence in managing the company.

Dailami and Hauswald (2003) conduct their evaluation and emphasize covenant provisions and credit spreads of emerging markets. The main virtues of those

pricing determinants were discussed in their studies. The legal framework and debt contracts were illustrated with agreements that define the rights and duties of debt holders and issuers. The legal framework and quality of the issuer's country was also considered to benefit the credit spreads and funding costs.

Debt security legal structures include indentures, the trust structure, selective guarantees, and covenant provisions. These structures to alleviate risks are all discussed in the context of debt holder protection. The legal structures of pricing and risk mitigation can be what differentiate project debt from normal corporate debt. But common factors such as the off-takers, third party guarantees, institution environments and the cash flow quality all affect the pricing of debt issuances. Hence, contractual structures and other agreements such as the off-take, output supply and other legal terms and conditions were taken into consideration. Normally, project debts were *pari passu* instruments and would become senior security when unsubordinated. Unsecured instruments were rated higher than secured instruments where they had projects with higher quality cash flows and provided less security to attract debt investors.

Dailami and Hauswald (2003) indicate that project debts have covenants reflecting the specific nature of the projects, which pertain to all types of holders including debt, equity, and government investors. They also discuss the role of the covenant type of indenture in minimizing the ex-post conflicts between debt and equity holders. As for project debt covenants, incentive provisions on performance targets, mandatory penalties and minimal equity participation in the projects might also be included. Other incentives such as institutional environment provisions consequent to regulatory, legal, and tax adjustments could also be re-assured of compliance in liquidation and other disruptions of projects.

This could ostensibly equal the transaction cost approach applied in the capital structure model by Titman and Wessells (1988) and the pricing methodology by Dailami and Hauswald (2003). The random country effect regression is to integrate the linear cross sectional application into the project debt credit spreads. Legal and related obstacles were identified as the most important factors, followed by regulatory and tax variables, which are discussed in the following sections.

2.5.5 External Risk Factors Of Spread Valuation - Transaction Costs

High transaction costs could prevent Chinese enterprises from raising funds within the financial market, making it harder for small to medium enterprises to take advantage of equity or debt financing. As such, high transaction costs could potentially affect the growth potential of those Chinese firms. Assuming the firm growth is constant, earnings will be critical. Firms might face the risk of insolvency if they do not generate enough earnings to cover fixed obligations (Hatfield, Cheng & Davidson, 1994). These adverse effects of transaction costs might have to be considered in the formation of covenants. However, further study and examination is required to find out whether transaction costs have any bearing on debt covenants.

2.5.6 External Risk Factors Of Spread Valuation - Tax Implications

It is safe to say that tax implications would be significant when Chinese companies try to avoid high tax payments and increase usage of tax shelters. Companies would encourage increasing debt leverages as interest payments have the effect of reducing tax payments. Management would prefer to use other alternatives to create homemade income such as increased use of share options and company reserves to buy back shares, etc. These financial transactions would have to be put into consideration when using covenants.

Taxes are an important factor within the capital structure decision. This is known as the tax shield of debt financing. DeAngelo and Masulis (1980) examine other tax shields for non-debt items that could also play a significant role in capital structure decisions. Higher tax countries may or may not lead to the firm having more covenant restrictions. But that could affect a firm's corporate decision regarding tax-sheltering activities.

It has yet to be proven whether there is a strong relationship between corporate and personal tax rates associated with Chinese enterprises. In particular, Hong Kong has a unique and simple taxation system. Unlike other places, where investors could determine their investment preferences by altering their personal wealth and income structures, variation in taxation methods are less important in Hong Kong.

Furthermore, a Chinese enterprise could face different kinds of taxation policies if it holds several businesses in different industries. According to taxation policies,

different firms are subject to different taxation levy regimes. Restrictions could even be applied across various Chinese provinces. Government authorities assigned to different special economic zone and provinces implement taxation policies based on internal regulations applicable under their respective jurisdictions. Regulatory influences could nonetheless affect covenant determinants significantly, and may or may not be the most influential factor for Chinese enterprises. Domestic law jurisdictions should be taken into account when examining how different market systems compare in terms of transaction costs and tangible costs, such as taxation.

If a covenant prevents a Chinese enterprise from being overly aggressive in leverage, then the transaction costs will not be reduced to a minimum. This is especially apparent when costs such as interests have an inverse relationship with other costs. Fan and Sundaresan (2000) demonstrate that the value of both debt and equity will increase from levels under previous jurisdiction assumptions. This suggests that weighted average cost of capital (WACC) with regards to paying tax is at a minimum when the debt-to-equity ratio is infinite. Anecdotal evidence suggests that tax shields could lead to higher cash flows, resulting in Chinese enterprises altering their leverages to take advantage of their effective tax rate.

In Hong Kong, the tax system is based on the straight-line method, where corporate tax is 15% on profit generated from business operations. In China, the tax rate is 25% of corporate income. Companies and non-profit organizations characterized by disincentives or incentives to provide some kind of social protection to the community might be subject to additional levies or might enjoy certain subsidies. In this case, additional operating expenses could apply and,

ideally, these companies should have adopted more debt to leverage their operations.

DeAngelo and Masulis (1980) indicate that tax can protect against non-debt items such as investment tax credits, depreciation charges and depletions, and play a significant part in capital structure decisions. The covenant is partially intended to preempt long term depreciation charges and restrict depletions, cognizance of whether operational needs should be included in the covenant when raising debt financing is absolutely essential.

Givoly, Hayn, Ofer and Sarig (1992) researched over 800 firms to find that events leading to the American Tax Reform Act of 1986 (TRA) proved that both debt and non-debt tax shields could reduce costs as expense concessions, thus minimizing the weighted average cost of capital. Bathala and Carlson (1995) repeated a similar testing, but adopted a different statistic approach with a net sample of 228 firms. Both studies revealed similar result findings indicating that leverage ratios increased when the TRA and non-debt tax shields were lower during the post period.

Pre and post event changes of firms in the Givoly et al. sample might corroborate the view of predecessors DeAngelo and Masulis, i.e. taxation cost has significant influence on debt covenant usage. However, researchers outside America may experience difficulty if the tax system and the timing of the settings are not similar.

China and Hong Kong can also be characterized by similar cases where business interaction is increasing but China and Hong Kong systems use

dissimilar taxation policies. China's policy is broader and the degree of taxes charged is more significant. It would be useful to understand how Chinese companies may respond to tax treatment compared with Hong Kong enterprises.

In order to narrow the gap between different research backgrounds, one could assume that capital structure determinants in different countries are defined by different cultures and behaviors. This methodology is similar to the one adopted by Fan, Titman and Twite (2003).

A wide range of evidence deriving from studies by Givoly et al. and Bathala and Carlson indicates that transaction costs, such as taxes, could be reduced in the capital structures of firms with cultural differences. The most notable results drawn from their studies are that firms in countries recognized as corrupt tend to be more levered and use more short term debt. However, firms in countries with relatively more favorable policies towards equity financing consequently tend to be less levered.

Anderson and Sundaresan (2003) conduct tests which show that cash flow based covenants may induce the borrower to alter its dividend policies and issue equity to finance contractual debt services. These actions are taken in order to avoid costly and premature renegotiation or liquidation. Without the cash flow based covenant, they argue that it is optimal for equity holders to receive maximal residual cash flow as dividend.

For its part, valuation literature typically tends to assume zero corporate taxes, wherein firm assets and firm value are effectively the same. However, with taxes,

asset value may differ from firm value. This might derive from claimants bargaining over the value of firm assets.

Country risks, transaction costs, and taxes are often assumed to be negligible in literatures when developing valuation theories. However, valuation literatures that have explored these issues tend to find that they indeed affect the degree of leverage, the method of financing and the valuation of the firm. Overall, the effect is relatively small compared to the impact of covenants but should also be taken into consideration when reviewing valuation.

2.6 Analysts and Valuation

Bond valuation is a major aspect of debt financing theory. It applies to covenant theory in the context of valuing Chinese credit spreads. Along the lines of risk determinants discussed earlier, covenants that could affect debt financings can also have a significant impact on credit valuations. The different types of debt securities that exist are measured using different types of valuation analogies and may also provide insight into covenant structures and bond values.

Fan and Sundaresan (2000) indicate that modeling covenants is critical in debt valuation literature. Their studies are based on the seminal works of Merton (1974), Black and Cox (1976) and Leland (1994). Specifically, Fan and Sundaresan adopt game theory to explore the behavior of two claimants, debt and equity holders, to accommodate varying levels of bargaining powers when assessing valuation.

Merton's (1974) risky debt model uses capital structure and firm volatility estimate to project the probability of debt payment defaults at the maturity of debts. They find that under the default scenario, corporate liabilities constitute contingent claims on firm assets, the inference being that credit risk and the credit valuation derive from fundamental sources of uncertainty. In a similar study, Black and Cox (1976) also include covenants through a fixed barrier threshold, while Leland (1994) adds taxes and bankruptcy settings into his research.

Individuals process information and make decisions based on the contingent environment. This notion belongs to a larger field of study in behavioral finance, which studies how individuals are influenced by psychological and sociological factors during decision making.

In this section, the thesis goes through the impact of human behavior on valuation and decision making. In particular, discussion focuses on areas of configularity and self-insight, which contribute to the analyst's perception of how covenants influence valuation. The section concludes with a summary of the typical analyst valuation matrix and process.

2.6.1 Configularity And The Interactive Effect

Information is usually processed in a linear manner, with one variable affecting a dependent variable, the perceived effect of which will not vary with external forces, but only when the independent variable changes. These types of models

constitute linear models of judgment, and are defined by a consistent relationship between the dependent variable and its independent variable (Libby, 1981).

There are also non-linear models, which differ from linear models in adjusting weights on independent variables based on other variables. In other words, the weight of a given variable changes or is perceived differently as the level of other variables changes or when more information is made available (Ganzach, 1997). This is known as configurality, where the level of effect of one variable on a dependent variable may vary as other variables fluctuate. In certain cases, this phenomenon gauges a situation better than a linear model. As Garcia-Retamero, Hoffrage, Dieckmann, and Ramos (2007) suggest, people tend to utilize their existing database of information in a way that enables or emphasizes overlapping or intertwined variables. Empirical evidence suggests that configural cues play a part in valuation decisions. Research analysts valuing a security are likely to place more weight on the bond covenants of a riskier debt than on covenants of a less risky debt.

Different individuals, depending on their experience, may have different levels of configurality. In general, the more the experience, the more configural the individual processes variables will be compared to less experienced individuals (Ganzach, 1997). This may result from the increasing sophistication of individuals that comes with age, which increases the ability to process compound variables. Configural processing of variables is utilized when the surrounding landscape is consistent with an individual's information processing structure (Garcia-Retamero, Hoffrage, Dieckmann, & Ramos, 2007)

Configurality may also depend on the context of the situation. For instance, a research analyst would not view an industrial credit in the exact same way as a financial institution credit. Individuals tend to utilize simpler heuristic methods to process more sophisticated information (McGhee, Shields, & Birnberg, 1978).

Earlier studies have found little evidence to support the view that an individual's emphasis on a variable alters when considered in conjunction with an accompanying variable (Slovic, 1966). Those studies were conducted by applying analysis of variance to measure internal consistency among a set of variables used by the individual. In a later study, also utilizing analysis of variance to process results, configural processing was found to possess a material degree of influence on the decision making process (Slovic, 1969). This study was conducted on stockbrokers making a decision that required complex human judgments, showing that configurality is also seen in a business context.

Since the 1970s, there have been a number of studies on configural processing that provide more evidence of the existence of configural processing. These studies have been conducted in various areas of business research, including financial analysis, investments, accounting, marketing, and recruitment and promotion (Slovic, 1969; Slovic, Fleissner, & Bauman, 1972; Ashton, 1974; Wood & Ross, 2006; Forlani, 2002; Hitt & Barr, 1989).

Ashton (1974) examines independent auditors through their cue utilization in the analysis of variance model (ANOVA). The focus of the study was the main effect linear cue versus the effect of interaction of configural cues for different types of judges and judgment tasks. Ashton (1974) conducted a simultaneous assessment of auditor's judgment consensus using a single data set. He also

studied individual auditors comparing data for consistency over time. Finally, he assessed judgment insight in the description and individual auditor's judgments through the analysis of variance model.

Similar to Ashton's (1974) descriptive models, this thesis will assess the relationship between statistical descriptions of the auditors' judgment and a subjective description of those judgments. The judgment consistency consisted mainly of consensus, and was consistent across research analysts at the same point in time using the same data. The judgment insight could be examined by the subjective weights and statistical weights across the problem questions. This is similar to the Ashton's Insight Index. However, it is possible that the descriptive models for this study could turn out to simplify the judgment analysis of difficult tasks, and would appear to be lower than previous studies.

This limitation could be what Ashton (1974) experienced in the consistency of the analysis of variance results, though additional credibility was applied to the research findings over a large number of subjects. The format of the employed stimulus materials corresponds more closely to the "real word" as pointed out by Ashton (1974), and would allow participants to understand the task at hand easily. Likewise, this thesis also suggests that research analysts might not make final decisions despite all depending on the house view or house decision.

Slovic (1969) also applies analysis of variance techniques to analyze complex human judgments when making decisions. The technique proved precise in testing for configural information utilization. The sample population on stockbrokers exhibited a substantial amount of configural cue processing. Slovic (1969) describes expert judgment as a mysterious, intuitive phenomenon, which

might defy precise description. However, the use of ANOVA could simulate or model the hidden cognitive processes of the judge.

In Slovic (1969), the application of ANOVA to the study of judgment consists of selecting a set of presumably relevant factors and constructing stimuli such that all possible combinations of factors are represented. When judgments made on each of these stimuli are analyzed in terms of an ANOVA model, a significant main effect for Factor 1 indicates that the judge's responses varied systematically with Factor 1 independent of the levels of the other factors. This implies that Factor 1 was important to the judge. A significant interaction between Factors 1 and 2 implies that the judge was interpreting particular patterns of these factors in a configural manner. The interpretation of Factor 1 differed as a function of the value taken by Factor 2. This thesis will use a similar methodology applied to a similar setting.

Slovic (1966) conducts the analysis of the human's judges where configurations of cues are utilized. The notion of internal consistency among a set of cues underlies the hypotheses of the studies and produce little evidence for the interpretation that the judgment a person gives to a particular cue depends upon the values taken by accompanying cues.

Slovic (1966) investigates cue consistency, or the manner in which these cues are used by the judge. A person is provided with several items of information pertaining to the personality and behavior of another individual and asked to make an inferential judgment of the individual with respect to some other attribute. A set of cues can be considered consistent if the judge feels that all the cues agree in implications for the attributes being judged, and inconsistent if the

inferences made from a subset of these cues were contradicted by the implications of another subset of cues.

In their research findings on behavioral decision theory, Slovic, Fischhoff, and Lichtenstein (1977) concluded that people generally optimize information most closely to the person's own values. Information can be used through cascading, eliminating, representativeness and adjustment. Each person was expected to generate results subject to different biases, and on the existence of multiple cues, people can learn to use cues accordingly. However, to further eliminate errors and biases that arise from the human decision making process, formulated approaches to decision making were created. Although still susceptible to error, it improved utilization of information cues in decision making. This is why financial research analysts with increased information access due to covenants are expected to provide more accurate judgments of bond pricing. Slovic, Fischhoff, and Lichtenstein (1977) also concluded that the impact of configural cues on pricing and decision making would continue to improve procedures facilitating better decision-making. It is for this reason that this thesis looks at how analysts process configural cues in regard to valuation decisions with covenants.

2.6.2 Self-Insight And The Human Processing Effect

Apart from risk factors among other valuation factors, debt valuation also depends a great deal on the extent of self-insight. Self-insight "is an individual's ability to express the relative emphasis he or she places on information cues when generating judgment" (Mear & Firth, 1987). It refers to an individual's degree of awareness of the objectiveness of his own decision making. For

research analysts, self-insight measures how closely an analyst can adhere to his stated model of judgment.

The importance of self-insight lies in the cognitive process of the information-providing survey. Mear and Firth (1987) and Joyce (1976) note that self-insight is critical in judgmental situations where a considerable degree of professional expertise is communicated verbally. Unless self-insight is adequate, a judge will communicate a distorted representation of his or her judgmental model.

The ultimate outcome of information processing is dependent on the number, quality, and magnitude of cues. Judgment also depends on cue validity, such that less valid cues would exert a lesser effect on the decision.

On the individual level, the ability to process information grows with experience over time. It is generally expected that an individual with experience in the field will perform better and assess information more effectively than those without the same. Experienced individuals tend to place more value on cues that are significant compared to less experienced individuals.

However, previous studies have found that even experienced analysts possess moderate self-insight (Mear & Firth, 1987; Slovic et al., 1972), a finding that this thesis explores further with regard to research analysts. Specifically, it considers the degree of analyst self-insight regarding the influence of bond covenants on bond valuation.

Understanding how individuals make decisions under risk has direct relevance for improving decisions in business and public policy (Payne, 1982). As a result,

the inclusion of behavioral finance is deemed necessary when considering debt valuation.

It has been pointed out that people are not fully aware of their cognitive insights and tend to underweight important decision variables, while overweighting less important ones (Slovic & Lichtenstein, 1971). Nisbett and Wilson's study (1977) not only echoed these results, but also stated finding practically no evidence for people's ability to access higher-order cognitive processes. So while using surveys as a data collection tool is cost efficient and provides a better scope, it also limits the degree of self-insight of its participants.

Behavioral finance has investigated human information processing and judgments in financial decisions. Pike and Neale (2006), for instance, study how psychological and sociological factors influence financial decision-making and financial markets. Fama (1998) and Snowball (1986) state that behavioral finance is founded on the study of cognitive psychology, and studies in the field have commonly adopted techniques from psychology literature. Statman (2005) finds that despite the development of rational investment logic and theories of market efficiency in the 1960s, investment decisions ultimately remain in the hands of individuals and are subject to normal biases and prejudices. Financial analysts are no exception, and are subject to idiosyncratic errors and biases in their judgments (Hunter, Schmidt & Coggin, 1988).

Human judgments are subject to several influences that bias outcomes, such as representativeness, availability and anchoring, and adjustment heuristics (Kahneman & Tversky, 1972). The representativeness heuristic is likely to

emerge when events are characterized by their general properties (Kahneman & Tversky, 1972).

It has been suggested that more vivid and more recent events are more memorable, resulting in the overweighting of their significance accompanied by a corresponding underweighting of mundane events (Libby, 1981).

The availability heuristic is likely to emerge when events are related as specific occurrences of recent or powerful historic events, the synchronicity of two events further strengthening this association (Kahneman & Tversky, 1972; Tversky & Kahneman, 1973). Anchoring and adjustment involves overweighting an initial event or starting point and subsequently underweighting new information in adjusting from this initial point (Tversky & Kahneman, 1974; Libby, 1981). Slovic and MacPhillamy (1974) have suggested that common information tends to be assigned a greater weight than unique information.

Decision-making is a highly contingent form of information processing (Payne, 1982). Firstly, individuals consider common features when considering similarities and distinctive features when considering differences and choices (Einhorn & Hogarth, 1981; Payne 1982). Secondly, causal data exerts a greater impact than diagnostic data in decision-making, with both dominating incidental data (Libby, 1981). Thirdly, individuals simplify decision-making between multiple alternatives by introducing a screening process, which can include omission, prior to reverting to a compensatory evaluation strategy on remaining alternatives (Bouwman, 1983; Lussier & Olshavsky, 1979; Payne, 1976). This is a form of self-insight.

Self-insight is investigated by correlating the analyst scores findings of cue usage against subjective weightings obtained from subjects (Solomon & Shields, 1995), and is regarded as a crucial factor in the learning process (Libby, 1981).

Studies using auditing subjects have found relatively high levels of self-insight (Ashton, 1974; Gibbins & Swieringa, 1995; Solomon & Shields, 1995). This is commonly attributed to the existence of professional standards and consistent training (Libby, 1981; Pike et al., 1988). Other subject groups, including financial analysts, have rarely demonstrated strong self-insight (Libby, 1981; Mear & Firth, 1987; Slovic, Fleissner, & Bauman, 1972).

The more work experience individuals have, the higher the degree of self-insight (Feldman & Arnold, 1978). This is especially true of experienced analysts, some of who were tested in research based on recommendations by Maines (1995) to enhance credibility.

Interviews alone can introduce bias from discrepancies between what people say they would do under various situations and what they actually do (Bouwman et al., 1987; Milne & Chan, 1999). This thesis preempted this potential problem by integrating interview analysis with results of the subjective self-insight analysis and analyst scores analysis from the experiment.

Limited self-insight has been found by Slovic, Fleissner and Bauman (1972) and Wright (1977). However, Savich (1977) has found substantial self-insight when studying senior accounting majors.

Whereas research analysts displayed only moderate insight, this limitation did not significantly inhibit analysts' subjective weight models from reproducing their actual judgment evaluations (Mear & Firth, 1987). This study's analysis provided evidence showing that analysts are generally consistent in formulating evaluations but display little consensus between subjects and across judgment tasks.

In the early studies of business settings, self-insight was employed more frequently in accounting or equity valuation contexts. This includes work by Slovic (1972), Ashton (1974), and Joyce (1976). Results showed that self-insight was generally limited. Later studies by Mear and Firth (1987) and Wright (1977) found more evidence of self-insight in decision-making.

Like Ashton (1974), O'Leary, Iselin, and Sharma (2004) indicate that consensus would exist in performance of analysis, or, in their cases, in internal control evaluations. However, they have reservations on the validity of the consensus and its relationship with judgment and expertise.

To summarize, self-insight has mostly been used in accounting studies. Recent years have produced more literature on the degree of self-insight with respect to risk pricing. Nguyen's (2002) empirical research on project finance risk pricing decisions by Australian project lenders measured subjective weights. She asked participants to allocate 100 points across the five risk pricing factors, laid out in this thesis, according to their perceived importance, and thereafter measured objective weights by asking participants to determine a set of independent scenarios by their risk level and their risk margin. Results showed that the degree of self-insight by project decision makers was relatively high.

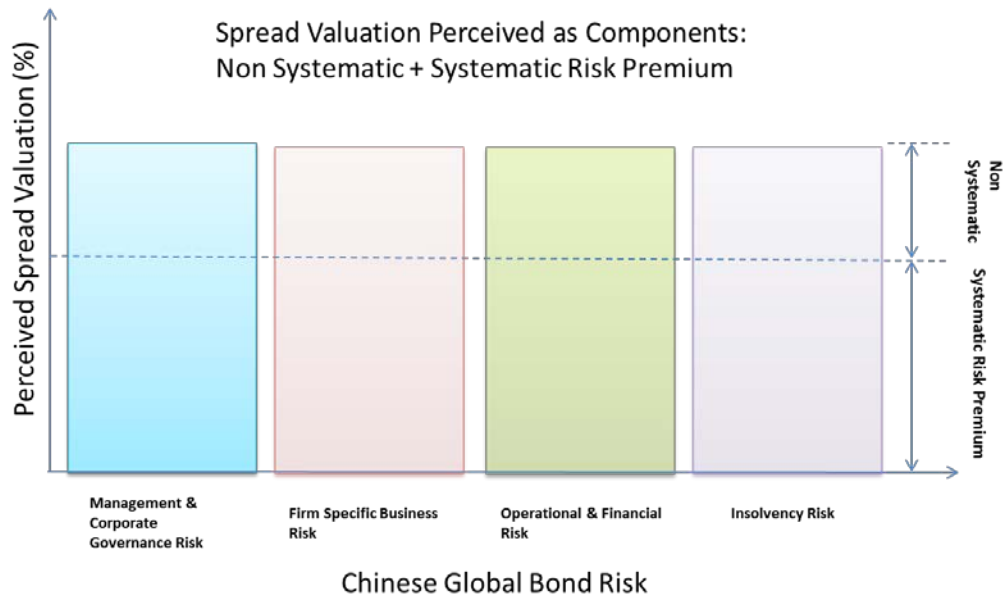
Research in self-insight has mainly focused on accounting or equity valuation. Although there have been more studies in the context of risk pricing, literature on self-insight pertaining to China risk pricing decision is still relatively sparse. This thesis takes up the subject by studying self-insight of analysis with respect to debt valuation.

2.6.3 Spread Valuation Block

Debt covenants provide a wide degree of protection to debt investors. By studying the restrictions and financial information disclosed, analysts are able to identify and assess the firm's asset quality and potential risk of event and default. From a credit analyst's standpoint, covenants can philosophically offer some risk reduction in the non-systematic part of the credit firm's valuation. That is, systematic valuation would bear certain risks that cannot be eliminated from the structures of debt covenant protections, though non-systematic risk can be eliminated by debt covenant. This is referred to as the Spread Valuation Block, defined by JP Morgan as the concept of risk premiums or yield differential added on top of the risk free rate on U.S. Treasuries or the Rock Bottom Spread in different senior ratings. This is shown in Chart 2.

Chart 2 – *Spread Valuation Block*

Spread Valuation Block as Perceived by Credit Research Analyst



Note. Adapted from JP Morgan, 2005

For instance, the systematic valuation factors of any credit firm are: the industrial sector to which the credit firm is exposed; founders and major shareholders that control the credit firm; and operational revenues that the credit firm is likely to receive within the business process. It is unlikely that these factors will be restricted and controlled by the debt covenant that is laid out internally for the purpose of debt protection (Modigliani & Miller, 1958; Jensen & Meckling, 1976; Myers & Majluf, 1984; Titman & Wessells, 1988; Smith & Warner, 1979; Fan & Sundaresan, 2000; Dumitrescu, 2006).

Credit analyst interaction could involve performing the ex-ante and ex-post research function. The ex-ante process involves tracking and assessing the

migration process and updating the credit matrix of the firm in advance. The real time assessment of the obligor is the most valuable, given that information of the ex-post is based only on available and revealed historical information. The ex-post function can be made up of any historical studies or through cycle evaluation such as grading and pricing to come up with some objective decision (Paglia & Mullineaux, 2006). However, all these approaches could take into consideration stress testing and scenario testing to project the possible conditions and potential event risk that could occur in credit firms. These would provide continual assessment of the obligor if necessary.

The debt covenant could reveal updates and leading information, restrict aggressive firms' activities, and prevent potential default & distress situations (Nachman & Noe, 1994; Paglia & Mullineaux, 2006)). When analysts assess risk capital requirements, they could use internal rating sources configurally in making mathematical considerations. These sources based on the debt covenant could support the default data using relevant credit default history.

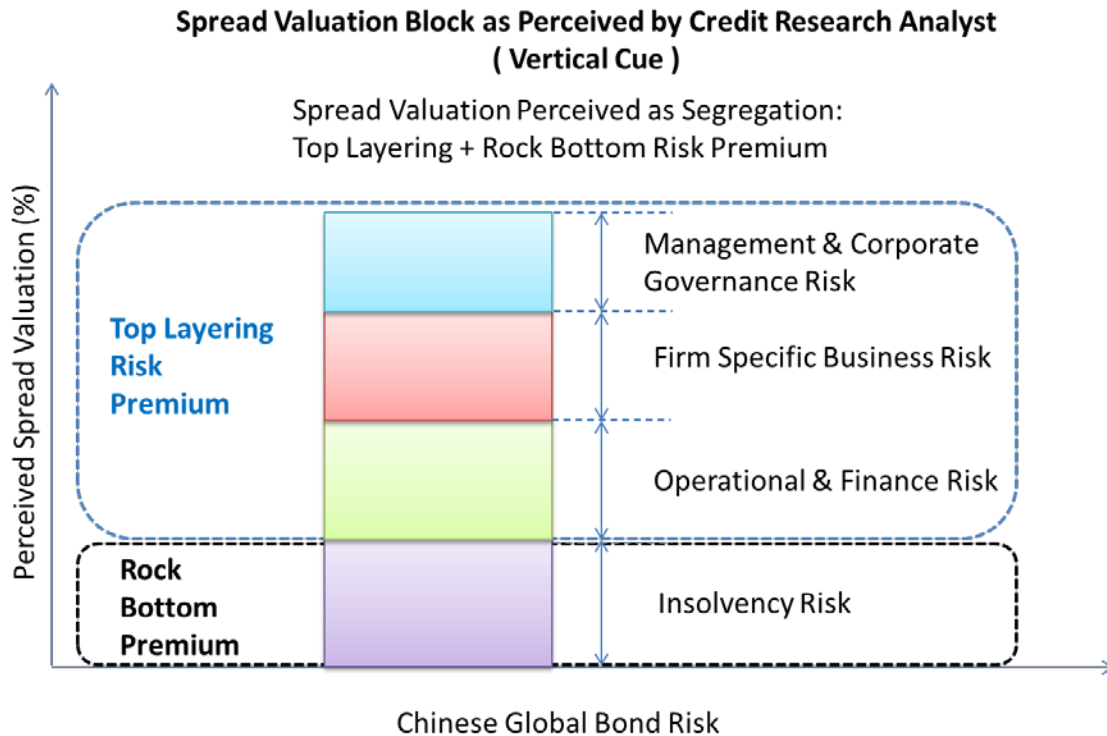
The research assessment of analysts could vary due to regulatory requirements in legal, market, and political interactions (Slovic, 1966; Slovic, Fischhoff, & Lichtenstein, 1977). Standards, uniformity, and consistency across markets are important areas in credit risk measurements for banks. The ad-hoc rules of the Basel Capital Accord and experience-based standard approaches to evaluating credit risks were to test capital sufficiency at different credit risk levels. The spirit of the accord is the alignment of the credit risk evaluation and assessment to the required regulatory capital. The Capital Adequacy Approach involves the linkage of credit risk to the regulatory capital amount required (Alibhai & Hingorani, 2003). Bank analysts can rely on ratings provided by external rating agencies on capital requirements by setting average default probabilities. However, the analysis

could lack objective perspective and qualitative judgment. On the flip side, the analyst could be limited to the subjective call on the credit matrix and be reluctant to provide any assessment standard close to the required regulatory process.

Given the fact that covenants have met certain legal requirements and provides insights into and qualitative perspectives of the obligor and the credit firms, it could setup a common platform to converge standards for serving the wellbeing of the credits.

When financial distress and bankruptcy is the core part of the Spread Valuation Block, it could be perceived as the Rock Bottom Valuation of the credit firm. Referring to Chart 3, bankruptcy could be the valuation for the credit firm's ability to repay coupon and debt principals.

Chart 3 – *Rock Bottom Valuation Block*



Note. Adapted from JP Morgan, 2005

The debt covenant can be perceived of as a snapshot of the credit analysis process to review the firm's credit matrix. Control and restrictions on the debt covenant could be reflected in valuation through the Spread Valuation Block. Self-insights of credit analysts could provide recommendations and the judgment call through comprehensive covenant details. These would include reviewing the information such as financial ratios of credit firms, evaluating management ability to control the company, and assessing the Rock Bottom valuation of the credit firm financially and sustainability (Mear & Firth, 1987).

The efficacy of an analyst's recommendation fluctuates. Indeed, some polls have indicated that analysts contribute minimal alpha in any Chinese credit selection. However, consensus poll has shown that analysts could influence the perception of market behavior, and this might affect the spread configurally over time (Slovic, 1966).

2.6.4 Analyst's Recommendation And Its Efficacy

Credit analysis involving debt covenants has a short history, and it is only recently that valuation techniques involving covenants have emerged. The credit analysis process could uncover the interactive effect of risk pricing factors in determining debt valuation. The credit analysis process can examine the debt covenant, which could play a role in reviewing the credit risk premium of Chinese enterprises.

Alibhai and Hingorani (2003) describe the credit analysis process as an independent standalone risk procedure. Credit analysis techniques can be described and derived from many different kinds of models. These include the univariate model, qualitatively on quantitative systematic model, and qualitative variable credit scoring systematic model. Other quantitative approaches include multivariate regression, discriminate & logic statistical models, models based on contingent claims, market price proxies for asset value coverage of debt obligations, and artificial intelligence procedures to predict default chances.

The debt covenant credit analysis model is incorporated on both qualitative and quantitative valuation approaches for China debt credits. This can be used to

identify interactive effects in face of the increasingly sophisticated credit environment.

The key interactive aspects of credit analysis have evolved into projections of bankruptcy and financial distress risk. The main component of credit risk involves the possibility that the asset's inherent risk migrates to a lower credit quality level. According to Alibhai and Hingorani (2003), that would result in lower security values in a mark-to-market pricing environment.

This kind of credit migration analysis could be understood as the analysis that should be deployed in examining any condition where credit quality deteriorates and leads to a loss for the creditors when default occurs. This process is the demand of money stage, where there should be a recovery level given a default (Alibhai & Hingorani, 2003), i.e. how much principal can be recovered when the firm enters the default event.

Debt covenant often includes restriction and disclosures of financial information and data that could help credit analysts in assessing the potential of default. The variable, 'probability of default' (PoD) is widely used in quantitative credit models. It is commonly found in credit scoring procedures and assessments of default event probabilities of financial institutions, specifically banks.

2.6.5 The Sources Of Analytical Inputs

For analysts, information disclosure of debt covenant could be analyzed differently according to different objectives. For financial documents such as financial statements and annual reports, the Investment Analyst would be more concerned with the leading information it discloses, while the Bank Analyst would consider information that can be used for matching data with other sources, such as rating agencies.

An important aspect of an analyst's job is to look at the firm's income statements, balance sheets and cash flows statements. To a certain extent, debt covenants enforce the review of financial information ratios on a regular basis. This is similar to financial reports or financial review but with additional financial ratios that require firms to review real time constraints as a restriction.

Covenants are very restrictive tools that sometimes even require firms to disclose sensitive information. The debt covenant requires firms to meet disclosure criteria for debt investors before lending from issue obligors funds and monies.

The income statement is for information including operating income, interest income and expense, and net income. The balance sheet is for data such as cash and marketable securities, liabilities, and shareholders of equity. Cash flow statements show cash flow sources pertaining to investing, financing and operating activities. These financial information data are needed when evaluating whether or not to lend monies to credit firms.

Analysts also look at regulatory information and requirements that must be satisfied by firms. For instance, high grade investments can meet capital requirements and subordinate lower grade investments would only consider a risk weighted portion to the total bank capital recognition.

In delving into accounting information, such as financial statements, analysts try to project cash flows and other leading information that transcends information reviewed in the firm's financial reports. Analysts also predict capital performance, which includes long term objectives such as the credit worthiness of the issuers, and the return of debt securities, both yield and capital gain.

According to the GAAP requirement in the U.S., revenues are reported on an accrual basis rather than on a cash basis. In this case, credit firms have to report their financial numbers more frequently, and follow a reporting standard that truly reflects the real time financial status of the credit firms. In this regard debt covenants could be more stringent with respect to financial information disclosure than annual reports and financial statements. They could demand more up-to-date information and regard financial ratios unable to meet certain restrictive thresholds as a technical breach of the covenant.

The most common ratio types are in the composites of reviewing the repayment ability of credit firms. Cash, free cash flows to measure the company size, total debt/capital invested, total liabilities/total assets, long-term debts/working capital, and current liabilities, are all commonly used to measure firm leverage levels. The ratio in cash flows/current liabilities, cash flow/capital invested for measuring the debt servicing, quick assets/total assets, cash/total assets, account

receivable turnover, free cash flows to equity, and working capital/total assets are commonly used to measure company liquidity.

Profitability is sometimes not a top priority for analysts, given that invested capital gains are neither beneficial to the company nor a priority for the bank's credit risk assessment. Profitability becomes a second priority because debt principal repayment ability is considered to be the most important. Debt securities are usually capped by the systematic interest return, and do not provide insight into the well-being of the credit firm's status with respect to its ability to repay the debt principal.

In a distressed situation, the obligor is in a position to fulfill its contractual obligation that could be at risk. Losses could take place in the event of default. The magnitude can be affected by the seniority of the contract, contract provisions and other affected lenders. Hence credit risk is the distress potential plus the recovery rate. The credit analysis process must be forward looking and provide assessments for any potential events as well.

In addition, the analyst assesses the likely recovery value on debt securities, if the performance of Chinese credit firms is inferior. At the same time, only select credits that meet the bank's capital requirement and credit rating information would be of greater importance relative to the residual values of the credit, should the credit go into a credit event and high grade investment requirements.

The analyst estimates the recovery value by measuring the value of the credit firm's assets in receivership or through restructuring and by analyzing the

strength of prospectus covenants and by identifying flexibility in the credit firm's capital structure.

The analyst mainly estimates the value of the credit firm's assets by assessing the Chinese firm's enterprise value relative to its liabilities. This could stress test the assessments of recovery value based on most conservative assumptions. That is the valuation that investors might pay for. Therefore the enterprise value is a measure of how much a credit firm's debt securities might be worth if it cannot service its debt and has to be sold. The analyst measures the enterprise value by applying a multiple to the credit firm's cash flows, typically basing the multiples on recent transactions and market valuations of comparable credit firms.

2.7 Summary Of Literature Review

Early studies into the impact of bond covenants were led by Smith and Warner (1979), who examined the debt financing under the context of agency problems, and the impact of covenants on firm value. They find that covenants can control agency problems and subsequently improve firm value. These results are supported in later studies of Bradley and Roberts (2003).

Examination of the impact of covenants on valuation has been indirect in earlier studies. While studies by Anderson and Sundaresan (1996), Fan and Sundaresan (2000), Merton (1974), Block and Cox (1976), and Leland (1994) have explored the risk pricing factors and their relation to bond valuation, covenants have not played a direct role in their examinations. Nevertheless,

previous studies have looked into the impact of the four risk pricing factors on valuation.

Referring to information asymmetry, Chang and Yu (2003) and Ho (2003) argue that open disclosure of firm information should improve its valuation. Myers & Majluf (1984), Vu (1986), Healy and Palepa (2000), and Dailami and Hauswald (2003) find that adequate legal contracts and controls could minimize problems caused by information asymmetry and have an impact on debt valuation.

Agency problems were studied by Jensen and Meckling (1976), Titman and Wessels (1988), Bebchuk and Fried (2003), Dailami and Hauswald (2003), Dumitrescu (2006), and Paglina and Mullineaux (2006) who find that more protection is required to protect debt holders against equity holders. This would alleviate agency problems and improve valuations. Fan and Sundaresan (2000) further shows that cash flow based covenants can contribute to minimizing agency problems.

Protection against financial distress is recognized by Noyce and Dill (2011) as a method of improving firm valuation. For instance restrictive payments in asset sales could force issuers to pay down excess debt and reinvest in profitable core assets. These result findings are consistent with Bishop et al. (1992), Weinraub and Visscher (1998), and Erickson and Trevino (1994) on their studies in working capital strategy and financial distress.

Kuruppu, Laswad and Oyelere (2003) and Asquith and Wizman (1990) looked at bankruptcy models to judge their effect bankruptcy costs in different scenarios.

Teixeira (2005), supported by research of Fan and Sundaresan (2000), Merton (1974) and Leland (1994), measured structural models to determine its effect on pricing, and finds that the inclusion of bankruptcy variables improve valuations.

The self-insight of analysts is also explored. This concept is based on that of Mear and Firth (1987) and Slovic et al (1972) who look at individuals expressing how much emphasis he or she places on information cues processing when generating judgments. Their work is also supported by Chang, Dasgupta and Hilary (2003) and Dillman (1991) who find that research analyst's involvement in credit assessment and proper risk management evaluation is important to the investment process as a whole. The inclusion of self-insight in the evaluation of covenants is to improve depth of the research findings by providing more explanatory power and empirical experience.

Despite extensive studies in the areas of these risk factors, literature in China and Hong Kong has been lagging developed markets. Little research has covered the area despite its growing prominence as a global financial centre. More prominent works by Dailami and Hauswald (2003) have prompted more research in the area. This thesis aims to complement and enrich the existing literature by providing more research in the areas of bond covenants in China and Hong Kong.

Chapter 3 Methodology

3.1 Introduction

In this chapter the propositions laid out in the first chapter are analyzed in detail and extended from the literature review of Chapter 2 to form this thesis' research objectives. This research will shed light on the impact of bond covenants on debt valuations by addressing three main issues.

- 1) The impact of each covenant risk factor and how it influences valuation
- 2) The interactive effects of the covenant risk factors
- 3) The degree of self-insight of analysts on the impact of covenant risk factors on debt valuations

This will be followed by an overview of the research methodology, providing a description and the application of experimental design, factorial design and ANOVA, and the interview method. The final section consists of how the research will be implemented.

3.2 Research Question

This thesis sets out to address the following question:

How do bond covenants affect Chinese global credit valuations?

The existing literature was used to develop and synthesize the independent variables and dependent variable used in the research model.

This thesis expands on the underlying question and explores credit spread valuations with respect to the four covenant risk factors, the interactive effect, and the degree of self-insight. As such, the research questions are as follows:

What is the effect of the four covenant risk factors on debt valuation?

Is there any interactive effect of the four risk pricing factors in the determination of debt valuation?

What is the level of self-insight of investors when making a valuation decision in relation to the covenant risk factors?

How and why do research analysts consider the four covenant risk factors in their bond valuation decision?

This thesis looks at the above issues by conducting a fully crossed factorial experiment and including interviewing credit research analysts to discuss how and why the covenant risk factors affect the credit spread.

3.2.1 Theoretical Background

In the following sections, this thesis will set out the key variables used in the hypothesis and research questions, and provide a summary of the central literature pertinent to the topic.

3.2.2 The Determinants Of Debt Valuation – Independent Variables

As reviewed in Chapter 2, risk pricing factors play a big part in the determination of valuations with respect to debt covenants. These risks factors are information asymmetry, agency problem, financial distress, and bankruptcy. These factors are qualitative and intangible, making them difficult to quantify or monitor. The inputs should be well-defined and translatable into variables that can be conceptualized by interviewees. There should also be sufficient information that can be extracted from public or private sources regarding the variables that will allow subjects to gauge the size, largeness or smallness, of the variable's impact. The risk pricing factors are drawn from the literature review and outlined in the model in Section 1.4.1.

In this thesis, bond covenants act as 'the proxy for the rule of law' as defined by

Dailami and Hauswald (2003). Bond covenants, as outlined in the model, affect debt valuation through these independent variables.

Referring back to the earlier proposed model of bond covenant risk pricing in the first chapter, this thesis sets out to examine the specific relationship between the covenant risk factors and valuation, and the effect of configurality and self-insight in the risk pricing process.

Below is a summary of arguments about why these covenant risk factors affect debt valuation.

In the context of bonds, information asymmetry may refer to the discrepancy between the information held by the management or other parties against that of the investor, which would skew the investors' perceptions of the related company's debt. Myers and Majluf (1984) and Healy and Palepa (2000) suggest that contracting and regulations could eliminate information asymmetry problems. However, this may be costly when contracts are suboptimal and regulation is imperfect. This leads one to infer that debt covenants might prevent costly disclosures, minimize information asymmetry problems, and potentially improve debt valuations.

The agency problem arises when there is conflict between two parties, namely the company management and equity holders. The management may not share similar interests with the equity holders and, consequently, deviate from its commitment to deliver targeted returns to equity holders in the absence of proper governance. Jensen and Meckling (1976), Bebchuk and Fried (2003), and Titman and Wessels (1988) have studied the relationship of different shareholders in a corporate structure and suggest that debt holders may require

more protection against equity holders. Smith and Warner (1978) argue that covenants can act as a tool to reduce agency costs and thereby improve debt valuations.

Financial distress is reflective of the exposed risk of the firm. Firms with financial distress problems may become more inefficient and debt holder interests and equity holder interests may become misaligned. Financial distress is also fraught with costs detrimental to the debt holders (Purnanandam, 2007). Shareholders may make investments in less proven assets or sell assets to increase shareholder returns. Realizing this aim can increase volatility and increase the chance of risk default on the company's bonds and reduce the prospect of recovery (Noyce & Dill, 2011).

Schwartz (2005) describes bankruptcy as the state where a bankrupt firm might be insolvent and its debt irrelevant because the firm cannot continue to operate. Bond covenants can limit Chinese enterprises from significant increase in leverage that undermines the issuers' ability to make timely payment on their bonds to maturity (Noyce & Dill, 2011). Excessive debt leverage also dilutes bondholder recoveries in a bankruptcy situation. Restrictive payments in asset sales or limitation on sales and leaseback aim to prevent asset sales which could remove core revenue generating assets supporting the repayment of debt from being sold. The restriction can either enforce issuers to pay down long term debt or reinvest in the issuers core assets (Noyce & Dill, 2011).

In conjunction with the four covenant factors, certain aspects of the risk pricing process, such as the interactive effect and self-insight of analysts, might also have an impact on debt valuation. Other influences on debt valuation in the model are further categorized as internal and external factors. These factors are hypothesized to bear a certain degree of influence on debt valuation. However,

this thesis focuses only on the four covenant risk factors. Other factors are left for further study.

3.2.3 Manifestations Of Debt Valuation – The Dependent Variable

In this study, debt valuation is one dependent variable, and is represented by perceived risk. This construct follows common industry practice and is understood as a debt value measure.

Another dependent variable used to complement the first is the relative value of the bond issue given its attached covenants. This construct represents a more qualitative aspect of the impact of bond covenants and provides reaffirmation to the results measured by debt valuation.

3.2.4 Detailed Research Questions And Hypothesis

Dailami and Hauswald (2003) identify regulations, the legal framework, and country risk as the most significant factors in bond pricing. These aggregately constitute a country's legal system, which is aimed to minimize and resolve disruptions caused by information asymmetry and agency problems. These are regarded as among the most important risk factors affecting bond pricing. Financial distress and bankruptcy are also major considerations, given that they are determining factors when deciding risk premiums.

Therefore the higher the risks in information asymmetry, agency problem, financial distress, and bankruptcy, the higher the risk premium would be for the related debt. These are the perceived risks that must be compensated by bond investors or the credit research analyst, as reviewed in the previous chapter. This thesis aims to extend the above discussion by evaluating the individual impact of each covenant risk factor by exploring the following problem question:

RQ1: What is the relative importance of the four covenant risk factors, namely: Information asymmetry, agency problem, financial distress, and bankruptcy for debt valuation?

The investigation in the first research question judges the main effect of covenants. On top of that, it is expected that the interactive effects will have an effect on debt valuations.

H1: The interactive effect of the four risk pricing factors of information asymmetry, agency problem, financial distress, and bankruptcy in the determination of debt valuation is significant.

Debt valuation is also subject to the risk pricing process of credit research analysts. While each analyst would have a predetermined set of weightings for different covenant types, their application of weights may differ in practice. This deviation of theory and practice is a bias known as self-insight. Self-insight considers the risk factors' level of influence on investors when valuing debt, or what leads to investors to over or under-estimate the impact of certain risk factors.

Chang, Dasgupta and Hilary (2003) have demonstrated that analyst coverage of a company bears a statistical relationship with the company's capital structure, namely that analyst coverage could enhance investor confidence when investing in the company. Both equity and bond financing would influence the company's financing structure. Credit bond valuation would take into account the effect of investor behavior and company financing structure. Analysts would then make investment decisions based on this information combined with self-insight. This leads to the second research question.

RQ2: How great is the degree of self-insight on investors when making a valuation decision in relation to the covenant risk factors?

3.2.5 Context and Richness

To provide depth and enhance validity, the qualitative segments of this research will be look at the following research questions.

RQ1.1 How does a covenant protect against information asymmetry? How does it impact valuation?

RQ1.2 How does a covenant protect against agency problems? How does it impact valuation?

RQ1.3 How does a covenant protect against financial distress? How does it impact valuation?

RQ1.4 How does a covenant protect against bankruptcy? How does it impact valuation?

RQ3 How does one assess protection from covenants in the context of the valuation process?

3.3 Research Methods

This section deals with research techniques used in this thesis followed by a section outlining the merits of the combined approach.

3.3.1 Research Methods Previously Adopted

Two kinds of research approaches apply to the questions addressed in this thesis: qualitative and/or quantitative. Qualitative studies involve methods using case studies or interviews. Quantitative studies are usually based on actual public or survey information.

Qualitative studies are more suited to situations requiring deeper explanatory investigation, such as cases dealing with links over time rather than mere frequency. Interviews are therefore well matched to situations requiring in-depth probes into specific subject matter.

Quantitative studies using experiments differ in that they offer the opportunity to focus on a particular aspect or behavior in a controlled environment. Quantitative studies also offer a more impartial analysis of the situation when using public information, such as company annual reports and market pricing information, and tend to be less susceptible to personal biases.

Perceptual data is yet another type of quantitative data used in such studies. In this thesis, it constitutes the bulk of the quantitative data. Using questionnaires, perceptual data is data collected qualitatively from analysts on their opinions. Because this data represents analysts' views on subject matter, or subjective opinions, it is difficult to use to it as objective information. Perceptual data also creates problems during the data collection process. Respondents may have a different level of insight into the independent variable, and attribute varying levels of significance to the topics under study, such as what constitutes information asymmetry.

3.3.2 The Rationale For A Mixed Methods Approach

A mixed method approach refers to the use of multiple methods involving quantitative and qualitative methods or concepts in a single study.

In the 1990s, some proponents of a mono-method study have cast doubt on mixed methods because different methods stem from differing epistemological perspectives, in that experimentation represents empiricism and case studies represent realism, and their combined use forms a contradiction. More recently, however, the mixed method approach has been widely favored in social science and business research for its advantages. Using a mixed research approach frequently results in superior research, which is a function of its methodological pluralism or eclecticism (Johnson & Onwuegbuzie, 2004). Some of the more relevant merits of using a mixed method research method include triangulation, which consists of using different perspectives to analyze the same subject. Rather than constrain the study, triangulation supports interdisciplinary research.

Johnson and Onwuegbuzie (2004) indicate that the goal of mixed methods research is not to replace other approaches but to bring out the strengths and minimize weaknesses of individual techniques in a single research study and across studies. Johnson and Onwuegbuzie (2004) refer to the fundamental principle of mixed research used in Johnson and Turner (2003), in which researchers collect multiple data using different strategies, approaches, and methods such that the combination is likely to gain in complementary strengths and reduce non-overlapping weaknesses.

According to Johnson and Onwuegbuzie (2004), mixed research can exhaust resources very easily and may therefore make it difficult to carry out two or more approaches concurrently. A research team may be required to conduct the process. Yet some aspects of mixed research remain to be fully worked out, for instance how to qualitatively analyze quantitative data and how to interpret conflicting results.

Anaf and Sheppard (2007) describe mixed method research techniques as the “third paradigm” in their health science research. Unlike other social science studies and financial studies, mixed methodologies may be equally important in interview techniques, reflecting a phenomenological approach and quantitative survey instruments. The contribution of quantitative and qualitative paradigms may be evenly balanced, so that no single feature of the project dominates.

Anaf and Sheppard (2007) state that the capacity to triangulate analysis processes can enhance rigor by considering the research issue from a more holistic viewpoint. Beyond generating results, a qualitative framework also raises appreciation of the qualitative paradigm, allows alternate meanings and values of research participants to be considered, and improves the potential to publish qualitative findings in mainstream journals. Process quantitative internal validity and qualitative triangulation are transparent throughout the research, enhancing rigor and illustrating the extra value and additional information a mixed approach can obtain.

3.3.3 Experimental Method And Analysis

Experimental design is the most preferred design when attempting to determine whether multiple independent variables lead to changes in the dependent variable. As defined by Levin (1999), experimental design is characterized by the manipulation of one or more independent variables and control of all others to study the relation of independent variables to the dependent variable. The advantage of experiment design is that it allows better control when establishing the direction of causality by isolating unwanted effects, and provides the most

support for a hypothesis of causation (Levin, 1999). Hence it demonstrates better internal validity than other research designs.

However, this improved internal validity gives way to deterioration in external validity, as experiments are more ‘artificial’ in that they fail to reflect the real world, either as a cause of the setting’s nature or the population. Experiments are an intrusion and essentially consist of setting up an artificial environment to assess various relationships with high internal validity. This limits the ability to generalize results across a real context, hence resulting in reduced external validity.

The key to effective experimental design is the fair and impartial conduction of a study. Theoretically, a truly random sample would allow accurate measurement between various sets of experiments and enable better assessment of the relationship between the dependent variables and the independent variables. In order to enable the results of this study to be generalized in the Chinese credit market, research participants cannot be chosen in a completely random fashion. To address this problem, this study only approached practitioners making investment decisions relating to bonds in large organizations in Greater China.

3.3.3.1 Factorial Design

Factorial design was chosen since it enables independent variables to be simultaneously manipulated at various levels and for the evaluation of main and interactive effects. Chewning and Harrell (1990) have used a similar factorial design in their research work that allowed for the segregations of factors into additional layers of the experiment.

Factorial design enables evaluation of a range of variables from different levels to be completed at the same time. It also takes into account interaction and individual effects. In this experiment, there are four prime covenant risk pricing factors: information asymmetry, agency theory, financial distress, and bankruptcy. An examination of the four factors is conducted at two levels to enable assessment of impact on dependent variables of debt valuation and the attractiveness of the bond issue with regard to the following three matters:

- 1) The influence of individual factors on valuations
- 2) The interactive effect of the factors on valuations
- 3) The level of self-insight of judges when assesses the risk factors.

Factorial design is advantageous in that it facilitates the analysis of relationships between risk factors and credit spread pricing decisions. It shows the main effects and interaction effects of risk factors on credit spreads. The fundamental effect of covenants on price valuation of the credit spread will thus be analyzed.

For this research, the dependent variable is the valuation of debt with the overall attractiveness of the bond issue as a complementary dependent variable. The main effects explored using factorial design are information asymmetry, agency theory, financial distress, and bankruptcy. These effects are measured

separately by observing the valuations reflected by each of these pricing factors. The interactive effects are also examined by observing the combined effect of the factors on debt valuations, which allows us to address research question two (RQ2).

Sheth (1977), states that factorial analysis is suitable for multi-levels of testing. In his research, he used multiple levels of factors to conduct evaluative studies concerning consumer behavior. In this thesis, a factorial design with 2 levels (2X2X2X2) will be used. This allows the thesis objectives to be met by examining the individual impact of risk factors and their interactive effects.

More evidence of the reliability of factorial design can be found in its wide use by studies in the business field. Torabkhani (2008), for instance, adopt a factorial approach to identify cost drivers for a process and develop practical cost models from contract quotes. The design analyzed 128 drawings quoted by three independent contractors.

3.3.3.2 Analysis Of Variance (ANOVA)

Analysis of Variance (ANOVA) is a way of uncovering the effects of independent factors on a dependent factor, by looking at main and interactive effects. This thesis uses the ANOVA technique to assess the four main covenant risk factors on credit spread pricing valuation. ANOVA prevails over simple regression as a tool of analyzing factor effects on a variable, inherently allowing for the analysis of interaction effects. Contrarily, regression requires addition of cross product interactive variables to handle interactive effects.

Consistent with factorial design, ANOVA enables an examination of main effects, namely the independent variable's direct effect on the dependent variable. It also allows for the examination of the interactive effects, which is the joint effect of the independent variables on the dependent variable. In this way, this thesis addresses research question one and hypothesis one (RQ1 & H1).

Sands Stephen (1996) utilizes ANOVA to study the variables that affect an auditor's decision switching and the strength of the auditor's influence. Responses from 53 Australian company executives were used. Sands Stephen's (1996) empirical models were constructed to investigate three research questions by using the MANOVA (within-subjects) design. The first model analyzed the respondent's perception on the level of effect, and five auditors' characteristic variables during two decision stages. The second and third empirical models used a one-way ANOVA design to investigate the individual effects of independent variables on the respective dependent variable.

Similarly, Amirshahi and Mirahmad (1997) identify six managerial decision-making styles and six value styles. The demographic and organizational variables were tested using ANOVA. A sample of 768 managers was surveyed, where Iranian managers were compared with Middle Eastern managers.

3.3.4 In-Depth Interview Method And Analysis

The in-depth interview is one of the most important sources of information for research according to Yin (2003). Interviews are usually associated with the survey method. In a normal interview process, the interview protocol should be prepared in advance to aid and streamline the flow of the inquiries and to enable the structure to adhere to the research objectives in an unbiased manner.

In-depth interviews can facilitate the investigation of hypothesis, for example, taking a systematic approach in an investigation could be designed to incorporate evidence from documents and interviews to examine the development of channel relationships (Johnston, Leach & Liu, 1999). Combined with other sources of evidence, a rich description could be built of how relationships develop. Survey research addressing this same question would require multiple surveys conducted over the course of several months or years (Johnston, Leach & Liu, 1999).

Interview data analysis is defined by studying and exploring “how” and “why” questions (Yin, 2003). It enables researchers to study contemporary phenomena and analyze contemporary events with the interview results corresponding to experiment findings. This can avoid practical restrictions and instead provide flexibility and breadth to experimental manipulations (Yin, 2003).

The primary step in designing the interview protocol consists of theory development. This is followed by selection and definition of specific measures, which are critical steps in the method design and in the data collection process.

The in-depth interviews are structured around the research questions, and are sorted and categorized according to the findings of each case. The conclusions of each interview are then compared to other interviews and implications are drawn from them. A summary report is produced from these results.

The recorded spoken language derived from the in-depth interview is one of the main sources of input for data analysis (Rabiee, 2004). There are some settings and some non-verbal communication cues expressed by the interviewee that are captured and add value by providing an extra dimension to the construction and analysis of data. It is recommended that facilitator's keep records and make observational notes immediately after each in-depth interview (Rabiee, 2004).

The process of in-depth interview data analysis begins during data collection, by skillfully facilitating the discussion and generating rich data from the interview (Rabiee, 2004). Data collection accompanies the observational notes and typing the recorded information. Immersion in data can be achieved by listening to recordings, reading transcripts in their entirety, observational notes taken during the interview, and summary notes written immediately after the interview. The aim is to capture details and grasp the interview as a whole before breaking it up into parts (Rabiee, 2004).

The in-depth interview is part of the triangulation analysis with input from professional research analysts. Their comments and inputs were obtained from in-depth interviews. This interview data can be used to support or challenge a theory, complement the quantitative testing, and solidify research findings.

Although interview data is limited in scope and offers little in terms of generalization of results, it provides an on-the-ground view of the impact of risk factors on company debt valuation, and furthers understanding of debt valuation as a mechanism. Interview data analysis will serve as an important tool in ensuring the validity of this study and will be used in conjunction with experimentation.

This thesis will be a more explanatory rather than exploratory study of the professional work experience of analysts and professionals. The use of interview data will provide internal validity to verify quantitative results and provide additional insight on the main unit of analysis when constructing the thesis results. The thesis will conduct 6 interviews using A to F to define the Subjects.

If all these interview data reach a unified predicted outcome, it would provide superior support for the initial set of propositions on an aggregate basis (Yin, 2009). The development of a rich theoretical framework is one of the purposes of cross experimentation.

3.3.4.1 Strengths And Weaknesses Of Interviews

In-depth Interviews enable the interviewer to establish rapport with the respondent and allow the interviewer to observe and listen. Questions permitted by in-depth Interviews are more complex than those permitted by other types of data collection (Rabiee, 2004). Through semi-structured interviews, which allow a

general guideline to structure the interview around while maintaining a degree of freedom to expression, the interviewee will be able to provide richness of context that may be hard to obtain from surveys.

According to Gable (1994), combining qualitative and quantitative methods can shed strong light on research, though corresponding integrated fieldworks of interview data and survey researches are yet to be developed.

The role of different research methodologies, namely qualitative methods such as surveys and experimental research methods were illustrated in Gable's (1994) field of information system. However, it is rarely discussed in covenant-literature on the effects of combining of different approaches.

According to (Gable, 1994), interview data can be employed for a variety of purposes including description, exploration, prescription and theory building. He states that benefits could be derived from combining survey research with interview data. This would be favorable for the current thesis, which combines these tools to explore covenant research in a Chinese context.

Despite its strengths the in-depth interview is also characterized by certain weaknesses. Regardless of the type of research, qualitative or quantitative, there is always the risk of subjectivity. Therefore the distinction one makes should be from the vantage of the stage of the process rather than merely from the type of subjectivity (Rabiee, 2004). A similar reference is also made by Yin (2009), where he found that the interpersonal aspect of interviews can actually limit the

results. This is due to the interviewee acting or responding in ways that are considered socially acceptable.

Although providing a strong base to examine bond valuation in theory, the inclusion of bond covenants was nonetheless indirect (Anderson & Sundaresan, 1996; Fan & Sundaresan, 2000; Merton, 1974; Black & Cox, 1976; Leland, 1994). That is, individual risk factors were addressed separately in their quantitative equations.

This thesis applies the interview data analysis approach, which refers to the group of methods emphasizing qualitative analysis (Yin, 2009). Data is collected from research analysts through participant observation, interviews, and surveys. The approach seeks to understand the problem under investigated. According to Gable (1994), this provides a chance to pursue penetrating questions and to catch the richness of organized behavior. However, Gable (1994) indicates that the conclusions drawn may be specific and difficult to generalize.

There are weaknesses in qualitative research, including inability to manipulate variables, chances of improper interpretation and lack of power to randomize (Kerlinger, 1986). Furthermore, Lee (1989) identifies corresponding problems with interview data analysis, including lack of controllability, deductibility, repeatability and generalizability.

It is not necessary to control behavioral events or variables in an interview. In addition, interviews are appropriate if the objective of the research is to explore a previous researched subject. Yin (1984) and Yin (2009) state that designs are

desirable when the intent of the research is description, theory building, or theory testing. This support evidence is useful in this thesis, which is designed for descriptive theory building.

This thesis includes six analysts only in the in-depth interviews. This small sample size can provide richness of context and more in-depth description of the effect of covenants on China bond valuation by drawing on their experiences. Given the interview is a within-subjects design, the additional input by the interviewee may provide additional insights into the studied subject.

The use of in-depth interviews is complementary to the use of surveys as a data collection tool in this study. Johnson & Onwuegbuzie's (2004) adopted the use of interviews in a triangular method, which enhanced the validity and verified results between methods.

3.3.4.2 Strengths And Weaknesses Of Surveys

The survey approach refers to discovering relationships that are shared universally by research analysts and therefore provide generalizable statements about the study. Its weakness however is that it provides only a snapshot of the situation at given point in time, which could yield little information on the data's underlying meaning. However, surveys can accurately document the norm, identify extreme outcomes and delineate associations between variables in a sample (Gable, 1994).

By combining surveys with interview data, the limitation of one could be offset or overcome by the strength of another. For instance, interview data could be limited in its controllability, deductibility, and repeatability, but the survey method could overcome those issues with relatively more controllable flexibility. Likewise, interview data can explore and represent potential model complexity while surveys could be constrained by design settings (Gable, 1994).

Interview data should provide an understanding of the phenomenon and insights about casual links, motivations, and causes of occurrence. This should be combined with verification by more objective techniques, such as surveys. This thesis collects experimental data and applies interview data for a richer insight into the results. Subjective understanding of the interview data provides the base and tests the validity of the interpretive understanding when referring back to the subjective understanding. Experimentation is used for hypothesis testing and problem question solving (Gable, 1994).

3.3.4.3 Survey Design

Dillman (1991) identifies four areas in surveys that constitute important sources of error and introduces methods to tackle them, such as sampling, which could exclude some people that are not in the targeted research analysis field. He also highlights Non Coverage source of error, by which some individuals will never be picked, such as normal investors who may be excluded from the survey.

Dillman (2000) points out although that conventional postal mail surveys produce results with high responsiveness, they are less effective than electronically

mailed surveys, which have proved more reliable and enjoy a shorter turnaround time. However, Schonlau (2002) indicates that email surveys can lower the response rate when the method is too direct and personal. Internet based surveys have advantages including reduction in research costs and efficient survey administration with respect to time and resource management (Kwak & Radler, 2002). This study favors the electronic email method towards cost and time efficient data collection.

In addition, Dillman (1991) points out that measurement could be another source of error, as it might not provide absolute accuracy in collected information. The discrepancy between the underlying and unobserved variables and observed survey responses could be a source of error caused by respondent characteristics, i.e. inability to provide accurate information or motivation to provide inaccurate information for some reason. In order to reduce bias in the survey instrument, the order of the scenario analysis in part one of the survey is randomized.

Dillman (1991) also indicates that non-response surveys would become a handicap in the results. The current survey must focus on response rates, the generally accepted indicator of non-response error. Respondents will complete the survey if the perceived benefits of doing so outweigh the perceived costs of responding. There are ways to improve response rates, such as ordering questions to ensure that interesting ones are successively linked; making pages seem smaller and easier to complete, and describing why the respondent's participation is important. The major strength of these designs is that they consistently produce high response rates. The thesis will focus on these areas in order to conduct a good survey.

In addition, sampling error could be a big problem, though according to Dillman (1991) researchers conducting surveys typically use the prescriptive list. There is a chance this thesis might include some sampling error due to its choice of participants, namely specialist investors, such as important banking research and investment research specialists. Conclusions derived might therefore be inapplicable to the general population.

One possible solution to this problem is to use mixed mode surveys, a mixture of visual (mail) and aural (telephone). However, given the high intensity of the professions of the survey respondents, the practical implications of this method are limited. Dillman (1991) indicates that a good sample survey has to avoid non-coverage error where all members of a population have a known opportunity to be sampled for inclusion in the survey. To reduce sampling survey error, respondents to be surveyed should be sampled by random methods in sufficiently large numbers to provide a desired level of precision. In order to avoid measurement error, Dillman (1991) shows that survey questions must be selected and phrased in ways that result in the respondent providing accurate information, and must include everyone included in the sample responses, which could avoid non-response error. Non-response error could be reduced using financial incentives and follow up mailing.

Dillman (1991) illustrates a Total Design Method approach (TDM), which incorporates ways to reduce the four main errors under study when conducting survey data collection. However, Dillman's (1991) TDM approach does not have enough empirical evidence to support results. The greatest limitation of the TDM is that it ignores the use of financial incentives. Another limitation is that TDM is based on social exchange theory, which was developed to explain face-to-face interaction, while mail survey is clearly not face-to-face. TDM uses the same set

of procedures for all populations. This is limiting because people value things differently which makes it difficult to have a one size fits all design whose benefits will outweigh costs. Different surveys need different survey procedures, which makes the TDM an insufficiently flexible approach.

Of particular concern to this study is the design of surveys in relation to self-insight. There is little literature treating the measurement of self-insight through surveys, though Nisbett and Wilson (1977) have found that surveys tend to limit higher order cognitive ability resulting in limits on the participant exercising self-insight. This problem is also reiterated in the current discussion on self-insight.

3.4 Combining Experimental And Interview Methods

3.4.1 The Unit Of Analysis – Credit Analysts

The main units of analysis are credit research analysts who make investments or fundamental credit decisions.

The credit research analysts participating in this study are considered to be specialists in making assessments on the Chinese enterprise spread valuation. Their main job is performing credit spread analysis in the Chinese credit investment or fundamental process. They have either received training from credit rating agencies or have extensive experience as investment professionals.

They are experienced in examining both high grade covenant free debts and riskier debts with stringent covenant protection. All the cited reasons make these particular credit analysts perfect subjects for experiments on debt covenants in the specific cases of Chinese enterprise credit spread valuation. The recommendation and judgment reports of these credit research analysts' are highly recognized and regarded by investment firms and bank credit risk monitoring departments. When trading activities start to reflect their recommendations and judgment calls, they might be understood to have directly influenced the determination of the credit spread in the Chinese enterprise debts. As demonstrated by Myers and Majluf (1984) effective deployment of information could affect a firm's credit spread valuation. This thesis therefore selected experienced credit analysts in order to enhance the validity of findings.

However, the concentrated market of Hong Kong based China bond analysts may imply that they may share common perspectives. To reduce risk of collusion on results, the triangular method was used to reinforce and cross check study results. Anaf and Sheppard (2007) state that the use of triangular can increase the rigor and improve validity of the research. The in-depth interview also provides assurance of reduced collusion as analysts were survey and interviewed separately and under a signed form of consent.

The following sections review the literature on credit analysts and its evaluation processes. The literature covers areas that influence credit analysts, their processes, and recommendation impact. The inputs used in credit evaluation processes tend to differ significantly across different analysts.

3.4.2 The Function Of Credit Analysts

As implied by Alibhai and Hingorani (2003), spread analysis can be analyzed via different approaches. Specifically, it might be characterized by the specialized approaches of the two main types of credit analysts, namely the bank analyst and the investment analyst. Where the bank analyst manages bank credit exposures and the investment analyst is responsible for managing investment portfolios for investment financial institutions.

These two main types of credit analysts have separate missions. Moreover, their respective processes could vary depending on how distinct their main objectives are. Where the bank analyst's main objective is to avoid credits from financial distress and bankruptcy, the investment analyst's main objective is to look for investment alpha contribution. Bank research analysts believe that evaluating credits should be based on their rating classification for risk weighted capital requirements of banks. Because, if low grade credits experience a financial distress situation, their gearing and cash flow problems would lead to a higher risk weighted capital reserve for potential capital losses. Indeed, from 2007 to 2009, credit migration saw many high grade corporates including financial institutions downgraded to distressed credits. Reassessment requires re-capitalization of bank reserves in such distressed investments. For investment research analysts, the objective in the short term to long term investment horizon would be to achieve alpha or outperformance, other factors being constant.

However, the responsibilities and functions of both analysts have a common aim, which is to identify the valuation of Chinese enterprise credits through debt covenants. There is little evidence that shows that the duty of analysts would

lead to bias towards any of the risk pricing factors. Therefore, for purpose of this study, both types of analysts are treated on an equal footing without explicitly differentiating the inputs of either. Any further investigation on this subject will be left for further study.

3.4.3 Credit Analysts' Experience And Judgment

This study has identified 35 research analysts from banking and investment institution backgrounds to conduct the experiment. The criteria for selection of analysts are commensurate with their experience in credit research, and take into consideration relevant aspects of their experience in making credit recommendations and investments.

Clement (1999) acknowledges the importance of the forecast accuracy of research analysts. Some professionals, such as accountants, would use research analyst forecasts as a proxy for capital market expectations. With respect to the Chinese credit market, it would be helpful if this thesis could identify highly reliable analysts capable of making relevant contributions to the experimentation testing and survey design.

Mikhail, Walther and Willis (2003) have tested the effect of experience on the research analyst's recommendations. Experience in certain attributed areas is believed to add value to recommendations and the investment decision making process.

Mikhail et al. (2003) have studied the firm specific forecasting experience for which the analyst has issued an earnings forecast. The focus of their study is factors affecting the degree to which analysts incorporate publicly available information in their final investment decision. This could benefit the end user investors such as private retail and institutional investors and professional investors, i.e. investment fund managers.

The experimentation model in this thesis works on similar assumptions, that the 35 research analysts chosen for participation will provide unbiased and reliable information towards testing the hypothesis.

Mikhail et al. (2003) indicate that experienced analysts could have two major implications. Firstly, research analysts might have the ability to fully incorporate historical information, such as earnings and valuation information and serial correlation into any surprise announcements, and provide at least a partial explanation for the post announcement drift on the analyzed valuation. Secondly, their test evidence shows that research analyst forecasts become more accurate as analysts gain experience and track assigned firms more closely. For example, analysts with over 8 years of experience normally provide better forecasts. Hence, with a selection of research analysts with average experience of over 10 years should fully cover the Chinese credit market, which has developed only in the past 5 or 8 years. This should enable the survey and interview results to be more reliable.

Jacob, Lys and Neale (1999) who refer to the Walls Street Journal's 1996 All-Star Analysts Survey indicate that highly regarded star analysts were ranked

based on skill. Consistently frequent reoccurrence in the surveyed ranking was not by chance but derived from real skill.

Although analysts surveyed in this thesis might not be highly ranked by surveys similar to those conducted by Jacob et al. (1999), they nevertheless have ample experience and industry recognition in the Chinese credit market.

Jacob et al. (1999) study factors that influence forecast accuracy among research analysts and use a large database of analyst forecasts of quarterly earnings covering a period of twelve years. There are three factors that Jacob et al. (1999) believe give the most accurate indication of an analyst's ability to forecasting earnings results. These are aptitude, brokerage environment on forecast accuracy, and experience based learning or learning-by-doing, where learning may result from errors in measuring experience. Their results showed that sufficient intra-industry differences exist to make the ability of the optimal analyst transferrable across industries.

In contrast to Mikhail et al. (2003), Jacob et al. (1999) also suggest that forecast accuracy does not improve with experience. Rather it is influenced by analyst related factors, such as aptitude, company alignments, brokerage size, and industry specialization.

Jacob et al.'s (1999) study is more in-depth in areas that Mikhail et al. (2003) did not delve into, such as industry specialization, or analyst ability to research firms in a particular sector. Industry specialization would probably allow analysts to develop in-depth knowledge and understanding, both of which can provide

considerable synergy in forecasting firms within the industry under study and result in greater forecast accuracy.

Jacob et al. (1999) also highlight the fact that there is little empirical examination of brokerage house resources, yet suggest that more advanced distribution networks for dissemination of recommendations by analysts in their study, better research support networks, and better quality relationships with the analyzed firms may all provide improved results.

This thesis applies the above criteria across the varying types and scales of financial institutions in the Chinese credit market investment industry. The institutions have wide coverage in terms of their research capability, which this thesis discusses in the section pertaining to analyst selection. Referring to Jacob et al. (1999), research house resources do vary and they are difficult to quantify. The selection of the 35 analysts takes into account of geographical coverage and the location of their research centre. For purpose of this study, selected analysts are based in and cover bonds in Hong Kong and China.

3.5 Implementation Of Research

This thesis uses a combination of qualitative and quantitative approaches. Some research areas were absorbed and processed at the interpretation stage and data was simultaneously collected for the two individual approaches. As Yin

(2009) states, triangulation would further solidify the findings if they can be validated through interview data studies within the research framework.

3.5.1 Data Base And Sample Selection

The database of the research subject for this experimentation was collected through surveys with experienced credit analysts. Potential respondents were from selected from a corps of experienced bank and investment analysts in Chinese enterprise credits, followed by a final shortlist of 35. This sample set is aimed to provide internal validity to the experiment and its statistical power. Interviews were conducted to gain a more in-depth review of their knowledge and experience of Chinese credits.

In its capacity as the main financial centre for Chinese enterprises global debt issuances, Hong Kong constitutes a unique site to conduct data collection for this thesis. The majority of the analysts were selected based on their location in Hong Kong and China in order to make data collection more effective. Participants were selected on an invitation basis without any specific personal interest involved. Participants were asked to work independently and were assured that their identity would remain anonymous.

3.5.2 Experimental Process

Data material for this experimental process was collected through direct addressed, self-explanatory survey instrument via courier or delivered in person.

The instrument was presented in double sided standard A4 paper size. This allows ease of reading and accessibility. The front cover of the experimental material carried some introductory information and guidance to lead the respondent into the experiment. The content referred to the experimental process. The last section pertained to the self-reported information and the general demographic data on the respondent, including working experience and area of specialization. A sample copy of the instrument can be found in the Appendix Section 3.

The three key aspects when conducting the experiment are perceived reward, minimizing personal cost, and invoking trust. Inducing perceived reward refers to encouragement by highlighting the importance of the individual's contribution and opinion. Limiting the number of questions and collection of personal information via a prepaid reply envelope minimized personal cost. Invoking trust means the use of university insignia to establish credibility with respect to the experimental process, the instrument questionnaire, and data processing, and moreover to eliminate conceptions of commercial gain. A statement of confidentiality, voluntary participation, and formal ethical procedures and standards were also included.

The experimental processes were conducted using a series of case scenarios. The straightforward and simple nature of the implementation might have easily misled the participants about the experiment data's depth and diversity. This problem was resolved by adopting the scenario cases approach in the survey instrument.

Subjects were presented with 16 scenarios, namely a completely crossed design of the four factors, each at two levels. In the China debt credit context, the term debt covenant that is closely associated with the four factors and valuation is often referred to as credit risk premium or the credit spread.

To fully grasp the processing of the examination and assist subjects in conceptualizing their typical benchmark case, the instrument introduction included a sample layout containing neutral content as illustrated in Table 4.

There was only one restriction on subject conceptualization. Subjects were asked to bracket their notion of typical China debt credit valuation around external borrowings or firm funding levels.

Table 4 – *Sample of Survey Case Scenario*

Information asymmetry protection	Same
Financial distress protection	Same
Agency problems protection	Same
Bankruptcy protection	Same
Assessment relative to typical debt (circle)	
Substantially lower	Substantially higher
Relative Value:	-3 -2 -1 <u>same</u> 1 2 3
Perceived Risk:	-3 -2 -1 <u>same</u> 1 2 3

3.5.2.1 Independent Variable Definitions

The implemented experimental design technique used categorical variables. The two levels selection for independent variables was driven by a prescribed number of cases, which should be manageable.

The survey instrument for the experimental study was chosen after carefully considering the specific wordings of cues. The cues conveyed categorical descriptions that could be easily misinterpreted and thereby skew results. To prevent this problem, cues had to be consistent and influence unambiguously, individually and in combination.

Definitions of independent variables borrowed from review literature are as follows:

Information Asymmetry - refers to relevant information that is known to some people but not to all parties involved. In this survey, it refers to information relevant to proper valuation that is known to company insiders by not bondholders.

Agency Problem - refers to the principal/agent problem or difficulties that arise due to conflicting interests when a principal hires an agent, such as the problems that can arise when bondholders face expropriation of their wealth through

inappropriate decisions by the company's management acting to maximize the wealth of the shareholders.

Financial Distress – corporate financial distress is a financial lexicon used to indicate the condition when promises to creditors of a company are broken or honored with difficulty.

Bankruptcy – refers to an exchange offer for delayed interest; missed coupons and forgiven principals; maturity extension; debt equity swap; haircuts and material default from the bond investors' standpoint.

These definitions and meanings of independent variables were designed to ensure consistency of the independent variables cues, each presented as Better/Worse variant, and categorized at two levels. Throughout the experimental process, the presentation of cues was made Better/Worse of seven of the last ten bonds at random to avoid presentation bias. The relative rankings of these four variables were to be input by the analyst. For the purpose of this study, the ranking explicitly provided by the analyst in the survey is referred to as subjective data or analyst scores. While the data derived from the scenarios are referred to as analyst scores.

3.5.2.2 Dependent Variable Definitions

The dependent variable of perceived valuation is usually measured by observing the yield spreads of respective credits in the universe. This was measured using

two proxies in the survey, the relative value and the perceived risk of the bond issue as deemed by industry professionals.

Dependent Variable – Relative Value of Chinese Credit Spreads

The first dependent variable considered the valuation of Chinese global credits. Part I of the survey instrument presented 16 scenarios consisting of different combinations of independent variables. The subjects were asked to rate the overall impact of the independent variables in each scenario on a 7 point scale, with -3 representing substantially lower effect and 3 representing a substantially higher effect. This scale was chosen for its wide familiarity among participants and to provide an easy reference for comparison. This information provided the analyst scores to measure self-insight and compare against the subjective ratings. Part II of the instrument asked subjects to allocate subjective ratings on the impact of risk factors using 100 as a total score. This provided the subjective data that would be compared to analyst scores in part I.

Dependent Variable – Perceived Risk of the Bond Issue

The dependent variable of the perceived risk of the bond issue serves as a complement to the first dependent variable. This is measured in the survey based on the participant's perceptions of the four covenant risk factors. In part II, the subjects were given 100 points to allocate among the four covenant risk factors. The variable deemed to lead to an improved risk profile was given a higher portion of the 100 points. This information served as a proxy for the impact

of the risk factors on debt valuation and as an affirmation of the results judged using the first independent variable.

3.5.3 In-Depth Interview

In-depth interviews were conducted in conjunction with the questionnaire to provide additional insight into the survey findings. Interviews were conducted separately at locations set in close proximity to the interviewee's office. Identified and interviewed participants totaled 6.

Participants were given a week's notice before the interview and notified about what the meeting entailed verbally by phone. The location was mutually agreed upon between interviewer and interviewee. Meetings were conducted in cafes and/or restaurants in close proximity to the interviewee's working office during lunch breaks or in rented study rooms at a time available to the participants. Interviews typically lasted one to two hours.

To avoid unnecessary interruption and to minimize distractions during the process of the interview, quieter areas of restaurants and cafes, such as corner seats or individual rooms, were selected. Food that is convenient to consume, such as Japanese food, was selected to minimize interruptions.

Each question was allotted around ten minutes, with a total time varying between one to two hours across different subjects. The interview protocol is set out in the appendix.

Chapter 4 – Results and Analysis

4.1 Chapter Overview

This chapter contains results and analysis of data from the survey and interview. Following Johnson & Onwuegbuzie's (2004) triangulation model, the survey and interview results are analyzed and interpreted concurrently, followed by integration into a consolidated body.

4.2 Experiment Results

This section sets out the research experiment findings. Collected data was analyzed using the SPSS 8 software package.

4.2.1 Description Of Respondents

A total of 40 questionnaires were sent out, out of which 35 completed and returned instruments were considered usable. Incomplete surveys or surveys declined by participants totaled 5. Overall response rate was 87.5%. This response level is acceptable as mail surveys can sometimes suffer low response rates (Brennan, 1992). One reason for high response is that some mail surveys were distributed to the respondents in person. Given the close proximity of the

business locations of most analysts, this was fairly cost efficient and reasonable. These measures collectively contributed to high response.

To improve the effectiveness and response of mail surveys, several techniques were used. The survey instrument applied an impersonal rather than personal salutation on the covering letter, included two reminder letters, and contained a paid return envelope. These techniques were applied in accordance with Brennan (1992). The completed response was consistent with Dillman's (1978) suggested mail questionnaire response in large samples.

The analysts cover different sectors in the bond universe with varying levels of experience. The average experience of survey and interview participants is 12.5 years and the median is 12 years. The years of experience within the group range between 2 and 30 years. More than 70% had 10 or more years of experience. People with 10 or more years were regarded as experienced and such a sample set was considered to be a sufficient base for this thesis. Survey returns are dominated by analysts whose experience pertains mainly to Chinese credit U.S. dollar bonds brought to market by debt capital market syndicates. Among the bond sectors, most specialize in China high yield bonds and China corporate bonds, and to a lesser extent, in China financials and industrial bonds.

4.2.2 Experimental Validity

Independent variables represent the significant decision making variables. In order to assess the degree to which independent variables capture the data,

respondents are asked to score perceived risk and relative value from substantially low to substantially high on a scale of -3 (low) to 3 (high).

Respondents were offered the opportunity to indicate other possible bond covenants or factors that they might consider relevant to bond valuation. A summary of the main additional influences revealed by the comments is shown below.

- Management track record
- Government ownership
- Industry sector
- Deal structure

Among other influences, most factors can be directly associated with bond valuation. Management track record, considered to be part of agency theory, received the most mentions. This further reasserts variable comprehensiveness applicability to respondent notions about which particular bond related variables benefit or fortify assessment of bond valuation.

Some mentioned factors, such as deal structure, represent a grey area in bond covenants, and although not characteristic of bond valuation or directly attributable to Chinese enterprises, they will exert a partial influence on bond valuation.

As previously mentioned in Section 3.5.1, the sample size of the survey group is 35. This sample size is considered to be sufficient for experiment designs and

should provide internal validity to the experiment. As seen in the results, the statistical powers are generally strong. These results are combined with interviews for a more in-depth review of the knowledge and experience of the analysts in Chinese credits.

4.2.3 Factor Weighting

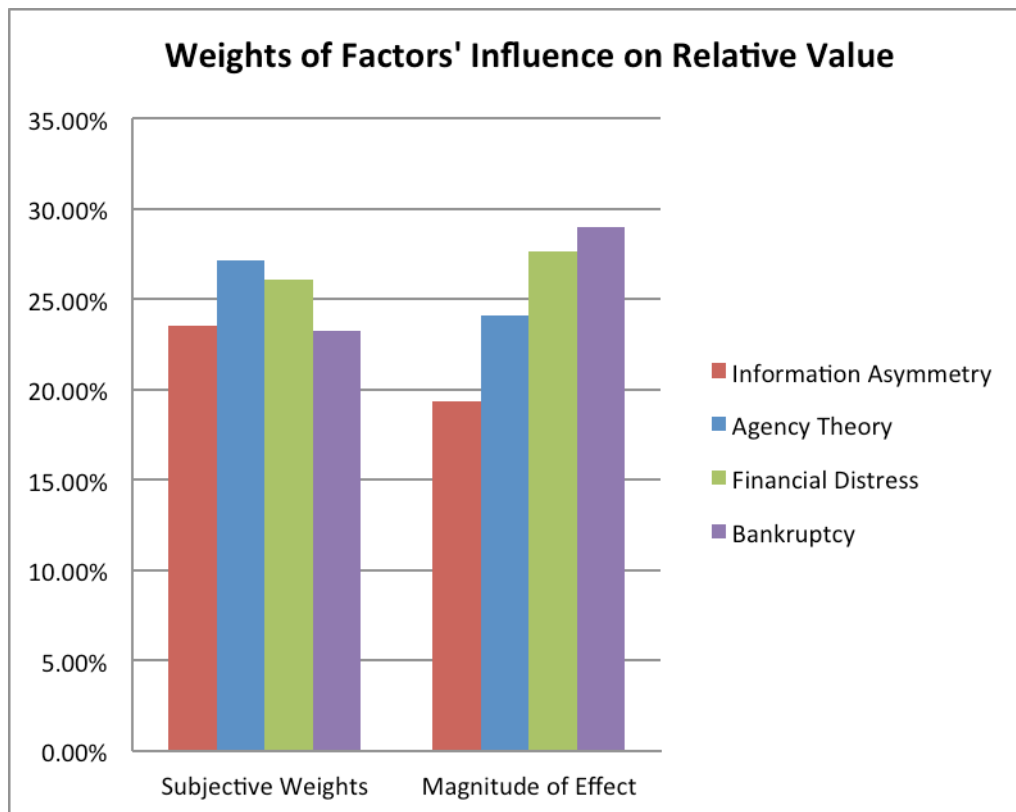
The dependent variables were analyzed using individual ANOVA analysis (Landau & Everitt, 2004). The relative weights of bond valuation related factors in contributing to the relative value of a Chinese credit are presented in Table 5.

Table 5 - *Factor weighting for relative value*

	Information Asymmetry	Agency Problem	Financial Distress	Bankruptcy
Self-reported weights				
Mean	23.54%	27.11%	26.09%	23.26%
SD	10.5	13.5	10.7	10.1
Max	40	70	65	44
Min	-	10	10	10
n = 35				
Rank	3	1	2	4
Magnitude of effect				
Rating - high	2.26	2.43	2.31	2.40
Rating - low	1.97	2.07	1.90	1.97
Difference	0.29	0.36	0.41	0.43
% of summed absolute differences	19.4%	24.1%	27.6%	28.9%
Rank	4	3	2	1

Table 5 is based on an ANOVA of survey results on the four covenant risk variables, namely, information asymmetry, agency problems, financial distress, and bankruptcy. Depictions of the analyst scores and subjective weights are shown below.

Chart 4 - *Factor Weight Influence on Relative Value*



The subjective weights show a relatively even balance between the four risk pricing factors with agency theory being the most prominent factor. However, the analyst scores show more irregularity and are less consistent with the subjective weights. The most noticeable difference is the effect of bankruptcy on the bond's relative value. It is presented as the most important factor in the analyst score weighting, which is opposite to subjective weighting. These results indicate that the importance of major influences is underestimated and the importance of minor influences is overestimated when analysts judge their own decision making processes (Slovic & Lichtenstein, 1971).

The effect size analysis Table 6 shows statistically significant main effects for agency problem, information asymmetry, financial distress, and bankruptcy (at 5% level). The p values of the four covenant risk factors are all below the 5% threshold. Bankruptcy is found to be the most significant factor in the Effect Size analysis. This is consistent with the Magnitude of Effect analysis, which ranks bankruptcy to be the most significant main factor. Bankruptcy is also the only factor that demonstrates a large effect size.

The results for bankruptcy are consistent with the analyst scores, which rank it as the most influential of the four risk pricing factors. Notably, interactions with bankruptcy tend to be large in magnitude and of strong power. The three interactions with bankruptcy are among the highest ranked in terms of magnitude and power. The findings of statistically significant main effect sizes for all four factors plus significant interactions under these controlled conditions confirms the validity of the model and the existence of a causal relationship between the posited variable and bond valuation.

The information asymmetry factor, which reaches a statistically significance level, is ranked as the second most influential combination when interacting with bankruptcy. This shows that analysts may possess cues configurally. The interactive effect is further evidenced in the Effect Size analysis, which indicates that over 50% of the overall effect size can be attributed to interaction effects. This provides support for Hypothesis 1. Hypothesis 1 is further supported by the presence of the large and statistically significant interaction effect as the number of risk pricing factors increase.

Table 6 – *Effect Sizes For Relative Value*

Factor	Effect Size	p value	Power	
<u>Main Effects</u>				
Information	0.01347	0.00740	0.01909	*
Agency	0.08200	0.00000	0.11619	*
Financial	0.03114	0.00005	0.04412	*
Bankruptcy	0.14786	0.00000	0.20951	*
Total Main Effects	0.27447			
<u>Interaction Effects</u>				
Information * Financial	0.03200	0.00004	0.03265	*
Information * Agency	0.01694	0.00281	0.01728	*
Information * Bankruptcy	0.04389	0.00000	0.04478	*
Financial * Agency	0.03223	0.00004	0.03288	*
Financial * Bankruptcy	0.03366	0.00003	0.03434	*
Agency * Bankruptcy	0.07544	0.00000	0.07696	*
Information * Financial * Agency	0.01800	0.00011	0.01840	*
Information * Financial * Bankruptcy	0.03127	0.00011	0.03190	*
Information * Agency * Bankruptcy	0.01440	0.00582	0.01469	*
Financial * Agency * Bankruptcy	0.02641	0.00020	0.02694	*
Total Interactions	0.32424			
Sum of Effect Sizes	0.59871			
* Significant at alpha = 0.05				
# Effect size is measured by partial ETA squared				

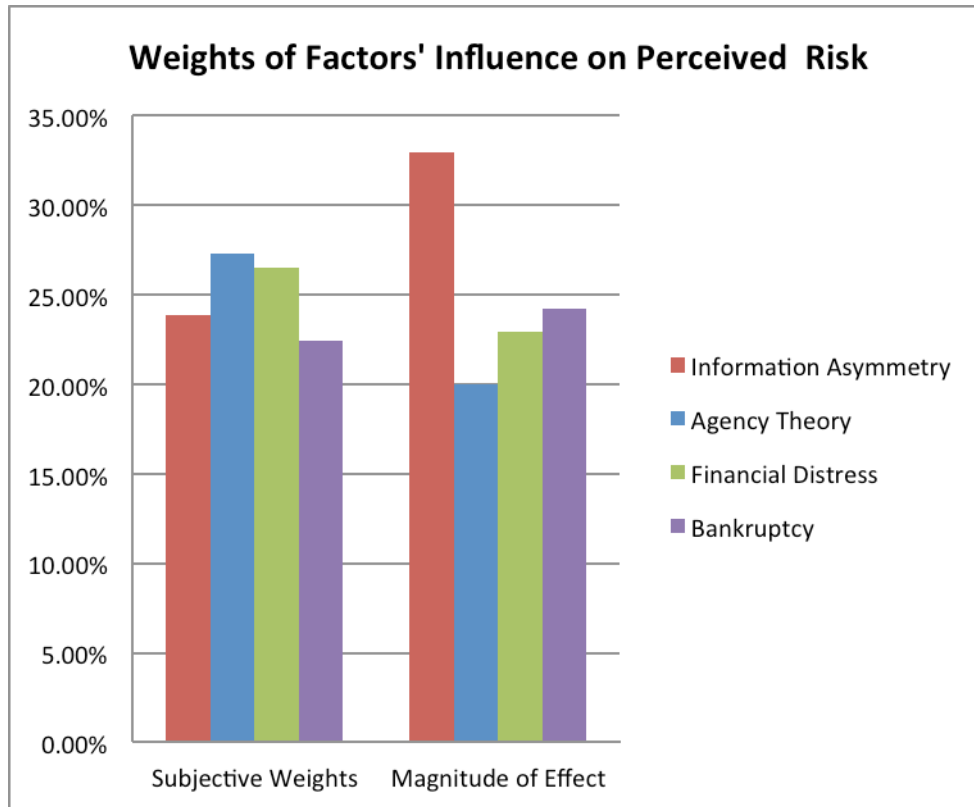
The relative weights of risk pricing factors in contributing to expected risk are shown in Table 7.

Table 7 - *Factor Weightings For Perceived Risk*

	Information Asymmetry	Agency Problem	Financial Distress	Bankruptcy
Self-reported weights				
Mean	23.83%	27.26%	26.51%	22.40%
SD	10.1	15.3	11.8	10.1
Max	50	70	70	44
Min	-	10	10	5
n = 35				
Rank	3	1	2	4
Magnitude of effect				
Rating - high	5.94	5.40	5.69	5.63
Rating - low	1.00	2.40	2.25	2.00
Difference	4.94	3.00	3.44	3.63
% of summed absolute differences	32.9%	20.0%	22.9%	24.2%
Rank	1	4	3	2

The subjective weighting and analyst scores are shown below in Chart 5.

Chart 5 - *Weights of Factors Influence on Perceived Risks*



Consistent with the effect size for relative value above, bankruptcy ranks as the factor with the largest effect size in Table 8. This is followed by agency problem. All four pricing factors are shown to be statistically significant according the p values for relative value.

The subjective weights for perceived risk show agency problem as the highest ranked factor and is ranked consistently with the previous set of analyst scores. In addition, the subjective weights in this case also deviate from the analyst scores in terms of the ranked order of importance of factors. These findings

provide further support and evidence that subjects overweight minor cues and underweight major cues, indicating that analysts possess limited self-insight.

Table 8 – Effect Sizes For Perceived Risk

Factor	Effect Size	p value	Power	
<u>Main Effects</u>				
Information	0.03018	0.00010	0.02974	*
Agency	0.04063	0.00001	0.04004	*
Financial	0.03483	0.00003	0.03432	*
Bankruptcy	0.04802	0.00000	0.04732	*
Total Main Effects	0.15366			
<u>Interaction Effects</u>				
Information * Financial	0.03594	0.00002	0.03611	*
Information * Agency	0.02895	0.00012	0.02908	*
Information * Bankruptcy	0.04563	0.00016	0.02821	*
Financial * Agency	0.02808	0.00000	0.02612	*
Financial * Bankruptcy	0.04485	0.00000	0.04584	*
Agency * Bankruptcy	0.06404	0.00000	0.04506	*
Information * Financial * Agency	0.02600	0.00001	0.04839	*
Information * Financial * Bankruptcy	0.04817	0.00000	0.06434	*
Information * Agency * Bankruptcy	0.01493	0.00561	0.01500	*
Financial * Agency * Bankruptcy	0.02520	0.00034	0.02532	*
Total Interactions	0.36179			
Sum of Effect Sizes	0.51545			
* Significant at alpha = 0.05				
# Effect size is measured by partial ETA squared				

4.2.4 Interactive Effects

As demonstrated in the previous section, interactive effects are evident in the four risk pricing factors. The sum of effect sizes for relative value and perceived risk indicate that interactive effects respectively account for 54.2% and 70.2% of total effects, contributing significantly to effect size.

Findings from interactive effect are generally consistent with the main effects. Among the main effects, bankruptcy is found to be most significant. When assessing interactive effects, interactions with bankruptcy are found to possess higher power when compared to interactions that do not consist of bankruptcy. This is especially true for interactive effects between two factors. The sets of data from perceived risks and relative value both include bankruptcy in the top four ranked factors by power and effect size.

In addition, both sets of data rank the interaction between bankruptcy and agency as the most significant factor. This is consistent with Fan and Sundaresan (2000), who linked agency theory and bankruptcy in their examination of bankruptcy related covenants and the bargaining power of agents. They find that bankruptcy, controlled through covenants, can limit agency problems and lead to improved firm valuation.

The strong effect sizes of two-factor interactions with bankruptcy are more than coincidental, as evidenced by the main effect and interactive effect rankings. What is interesting is the tendency for three-factor interactions to rank at the lower spectrum in terms of effect size and power. This applies even with

bankruptcy among the three-factor interactions. Nash, Netter and Poulsen (2001) provide a probable explanation by noting that overly restrictive covenants may hinder firm growth, especially high growth firms. As a result, the inclusion of overlapping covenant functions may instead be detrimental to valuation. This concern has also been voiced by interview participants, which are further elaborated in the sections below.

4.2.5 Self-Insight

To investigate self-insight, relative value and the perceived risk were used to measure analyst scores on a scale ranging from substantially low to substantially high, or -3 (low) to 3 (high). Subjective weights were collected from the data in the distributed survey and were rated on a 100-point scale. Comparison of the subjective weights and analyst scores is illustrated in Chart 4 and Chart 5.

Comparison between the subjective weights and analyst scores shows differing rankings of risk pricing factors. Both sets of subjective weights tend to spread the risk factors more evenly, with Agency Problem possessing the greatest influence. However, in both cases for analyst scores, agency is ranked at the lower end. The obvious discrepancy of these results demonstrates that there is limited self-insight among analysts. Given the relatively long average working experience of 12.5 years of the survey participants, this contradicts, both, Feldman and Arnold's (1978) research findings that experienced individuals have higher self-insight and Maines's (1995) on credibility enhancement.

This result may be affected by certain biases, such as representativeness, availability, and adjusting and anchoring among the participants. Kahneman and Tversky (1974) state that human processing is subject to these systematic and predictable biases. One of the reasons for these biases is that they simplify the tasks at hand and enable the person a more economical way of dealing with decisions despite this leading to biases. For instance, in this case, the availability bias may lead to limited self-insight through affecting the analysts' decision making to lean toward agency problems as recent news flow may have been highlighting corporate governance issues in Chinese corporate more frequently than any other issue despite other problems than are prevalent.

4.3 Interview Data

This section evaluates the qualitative data from interviews. A brief description of the interview participants and a summary of the interviews in relation to the research questions are included. This is followed by a cross interview data comparison of findings pertaining to main topics or important themes evolving from discussions. The cross interview data comparison includes direct quotes from participants to illustrate points and contexts.

4.3.1 Interview Summary

A total of 6 interviews were conducted. A brief summary of the views of each analyst in relation to the covenant risk factors, followed by a brief description of each subject's background and interview insights are presented below.

Subject A's views are consistent with the configural cue processing theory (Slovic, 1969; Ashton, 1974) when reviewing covenants of China corporate bonds. She highlights management quality as the key to transparency and disclosure problems in Chinese enterprises.

Subject B believes mutually agreed upon compensatory action can act as a covenant breach substitute and defeat the purpose of covenants in Chinese companies. Despite this opinion going against the principles of Dailami and Hauswald (2003), Subject B also believes that covenants can be expected to influence the valuation of Chinese bonds. She suggests that this may be achieved through reduced irregularities in financial and corporate governance.

Subject C's concern with the cash flows assessments for possibilities of liquidity based defaults is consistent with Fan and Sundaresan (2000). Yet Subject C believes there is no perfect solution to deal with Agency Problems and expects that Chinese bond covenants will be unable to solve issues related to Agency Problems. Rather, like Paglia and Mullineaux (2006), Subject C looks into debt ratios, cash flows ratios, and negative pledges for information disclosure.

Subject D believes there should be an optimal way to include bond covenants without being so restrictive as to prevent Chinese enterprises from making investments. He actively considers bond covenants when reviewing Chinese bond valuations.

Subject E views Chinese bond covenants as an extra layer of legal constraints on already stringent industries (Dailami & Hauswald, 2003), such as the power sector, in which Subject E covers. Subject E believes that there is a tradeoff between Chinese enterprises' corporate actions and the costs they pay to debt investors.

Subject F suggests that the information the CFO signs off may not be fully reviewed by him, especially information at the subsidiary level. Subject F believes that improved transparency in corporate action and improved information disclosure can aid Chinese bond valuation (Paglia & Mullineaux, 2006).

4.3.2 Protection Against Information Asymmetry And Impact On Valuation

According to analysts, information asymmetry can be alleviated by ensuring fair and full disclosure of price sensitive company information on a timely basis. This information can include consistent release of company financial statements, quarterly reports, and project updates. Aside from these conventional forms of acquiring information, analysts can also deduce useful company information from corporate actions. Subject F illustrated this point with the example of Renhe Commercial. Its income margin is high and reflected in its EBITDA margin. However, investors should not look at EBITDA as the only financial indication. From Renhe's results announcement, tax, which is highly involved in China, has important implications. The EBITDA of China property firms gross and net of tax could show large differences. Investors should use net of tax statistics for monitoring purposes. Covenants should enforce disclosure on any net after tax information. This should enhance transparency and provide more accurate information for analysts to assess Renhe's results.

The majority of analysts, despite recognizing covenant protection against information asymmetry as a factor in determining valuation, do not concur on it being a significant factor. In fact, subjects D and E state that information asymmetry is the least important out of the four risk pricing factors. Their main concern is the ability of covenants to offer protection against information asymmetry is difficult to regulate and hard to define. Further, information disclosures are often a regulatory requirement and standardized by stock exchanges, as indicated by subject B. This is especially the case for highly regulated industries such as utilities. Stock exchange involvement may wield greater influence than covenants given their proximity to the government.

In particular, much information disclosure is governed by a company's investor relations policy, which is a voluntary system. There is limited scope of information disclosure that can be enforced using covenants. A better option would be to host regular call-ins for management interaction with debt investors, as these would be perceived as positive and would function as added covenant protection. This should result in improved information disclosure and transparency in corporate action, thereby helping firm valuation. Another important aspect concerns guarantor information or committed facility information, of which investors should receive frequent updates, which in turn should help analysts in analyzing their valuation based on the firm's leverage and repayment capability.

4.3.3 Protection Against Agency Problems And Impact On Valuation

Analyst reactions to protection against agency problems are shared with bankruptcy. While there are strong believers in the protection against agency

problems, there is also a portion who believes protection against bankruptcy should be of utmost importance. Believers of protection against agency problems argue that covenants could prevent a company's management from having too much control, especially when management can misallocate company resources and engage in aggressive corporate activities. In extreme circumstances, the company could divest its core assets and invest in aggressive projects with a risk profile above the accepted threshold. This agency problem would subsequently evolve into financial distress and could even lead to bankruptcy. This proves the importance of protecting against agency problems.

On the contrary, subject C explains why agency problems are not ranked higher. Although they can be serious, there may be no perfect solution to dealing with corporate governance issues. For instance, forestry companies in China were experiencing difficulty in ensuring proper corporate governance control. In some cases, leverage control would be more effective to quantify and restrict companies from financial distress.

A more concrete example set out by subject D involves offshore capital flows. Restrictions on dividends upstream can ensure certain amounts of interest and principal payments are retained offshore for repayment purposes. It can also limit management influence on company cash flows. Also, restrictions on management from maneuvering its capital from its offshore vehicle back to onshore companies can effectively minimize the corporate governance issue, and thereby minimize agency problems. By maintaining minimal agency problems, an issuer should see valuations reflect the lower risk level of the company.

4.3.4 Protection Against Financial Distress And Impact On Valuation

Analysts discussed financial distress in conjunction with bankruptcy. Most dismissed the idea that protection against financial distress is the most significant out of the four risk pricing factors unless when combined with protection against bankruptcy. In this aspect, the effect of protection against financial distress can be considered relatively subpar. Subject C believes that in a financial distress condition, the company could experience volatilities that would induce prices to plummet even further than were it bankrupt, as the market would justify the company's recovery rate post event. Analysts would pay attention to the financial ratio, such as the Debt Service Coverage Ratio, FCF to Debt Service Ratio, and negative pledges, to monitor the severity of company indebtedness.

The most effective protection against financial distress provided by covenants would be to reduce unnecessary gearing in the balance sheets of Chinese credits. If covenants effectively provide protection to Chinese credits, the protection would require compensation due to reduced risks from the credit. However, most analysts agree that covenants against financial distress are best used in combination with other protection.

4.3.5 Protection Against Bankruptcy And Impact On Valuation

As mentioned earlier, protection against bankruptcy, along with agency problems, is considered by analysts to be among the leading factors influencing valuation. Some analysts regard it as the most important factor, given the highest priority of

covenants is to prevent a firm from falling into bankruptcy, which could theoretically render a firm's credit worthless.

Cash flow issues pose the most direct impact to a credit's payout. Any unwarranted disruption in the provided cash flow for this purpose would lead to analysts placing a larger risk premium on the credit. Bankruptcy is the most serious outcome for a disruption in positive cash flows. Debt Service Coverage Ratio, Cross Default, Limitation on Subsidiary debt and Limit of Indebtedness covenants can restrict companies from engaging in too much borrowing and going into bankruptcy. This is especially true for capital intensive industries that structurally have high leverage.

Subject E illustrates the importance of protection against bankruptcy by raising the example of U.S. utility companies during the debt crisis in the late 1990s. Some contingent liabilities are hidden due to the complex nature of the corporate structure of utility companies. These can include operating or subsidiary company risks that are not displayed entirely on the parent company's financial statements. Hence subject E would look at covenants that protect in these areas. Agency problems and information asymmetry are less significant in this example as the utility sector is considered a highly regulated industry by law or policy constitution, and information disclosures and changes in ownership are tightly monitored.

4.3.6 Covenants In The Context Of The Valuation Process

Analysts typically spend 20% to 30% of their time during the valuation process in analyzing the bond covenants. The remainder of their valuation process is allocated to groundwork such as understanding the financial profile, corporate

structure and industry characteristics, and the outlook of the industry and firm through site visits, management meetings and industry briefings.

The analysis of covenants is conducted in relation to their other valuation considerations. For instance, when projecting future cash flows for an issuer to determine its credit profile, the analyst will observe if there are certain covenants, such as limitation on subsidiary debt, that restrict future cash outflows to a certain level. This is built into the overall analysis of the credit. All interviewed analysts are consistent in their belief that addition of covenants contribute to valuations.

However, subject D uniquely points out that covenants can influence Chinese credit spreads positively and negatively. Covenants are mostly structured by third party financial institutions that negotiate with potential investors of the debt as to the extent of added protection required. Issuers normally bargain to pay for smaller risk premiums when there is more protection. Currently, the Chinese credit market is still a supply driven market. In other words, the market is more favorable towards issuers' demands. In the event of too many covenants, issuers could find a different financial institution to meet their needs.

While the analysts generally agree that the added protection from covenants can boost valuations or lower the borrowers' risk premium, they also share the sentiment that the degree of protection from covenants is dependent on the profile and locale of the issuer. One of the reasons for this, as subject C points out, are that not all credits apply the same covenant standard. Those deemed more effective may receive more emphasis. This is especially the case for high yield credits in Asia. The application of the same covenant in a high yield credit will lead to a larger magnitude of change in valuation than a lower yield

counterpart. Subject D also makes a similar observation in that Chinese credits are traditionally less inclined to use covenants when compared to their developed country counterparts. This leads to the concern that Chinese firms are not sufficiently disciplined to apply covenant standards, and may not achieve the desired level of valuation impact.

4.3.7 Chinese Contextual Factors Impacting Perceived Covenant Value

A total of six interviews were conducted for this thesis. The key points and perspectives were discussed and recorded separately on memo and voice recorder. These issues are expected to relate to the literature review. Beyond the main thesis, other issues have also been included to provide more insight into the study. Key points are reported in the following sections and illustrated with quotes from interviewees.

Subject A, C, E believes that covenant could protect investors and would reduce risk, and valuation should compensate such bonds differently compared to bonds without covenant protection. Subject B, D & F do not expect that more covenant is necessarily more attractive, as covenants could be too restrictive and constrain enterprises investment opportunities. For the most part, this supports the view of Paglia and Mullineaux (2006) whose research findings show that valuation should be factored in if the covenant could provide ex-ante information, protect

from agency problem, provide incentive to monitor financial distress, and restrict aggressive borrower behavior leading to bankruptcy.

Before reporting the analysts' views, it is worth describing the context within which the subjects assess Chinese global credit USD bonds. The thesis focuses on Chinese global credits that are primarily underwritten by investment banks, underwriters, and syndicates in Hong Kong and Singapore. There are several types of Chinese issuers, which are defined by their country of domicile, ownership, or location of business operations. Issuers could have Mainland government ownership status, which is known as State Owned Enterprise or SoE, or could be a Chinese company with substantial ownership by offshore companies, called "Red Chip" Chinese companies, or the listed window company initially used in Hong Kong as the financing or operating vehicle outside China. Interviewees observed that some of these companies are H share companies, that is, they are listed on the Hong Kong stock exchange by China listed companies.

The interviewees commented that there would be more and more Chinese enterprises coming to offshore markets to raise funds and capital. It will become difficult to assess such Chinese credit risks if there is no standard in applying information dissemination guidelines to the public by Chinese enterprises.

"Information disclosure is important...if covenant could require management to appear in front of investors on regular basis, that would be helpful to analyze the firm (sic)."

“Since Chinese enterprises’ audit and accounting applying standards can vary. Insufficient information could post difficulties in assessing Chinese enterprises with issues of information and data transparency.”

Subject F

”Corporate governance and disclosures are the main issues in Chinese credits. The role of independent board directors in China cannot compare with those in the developed markets, where the independent board directors have high standards in monitoring the company’s management, and have taken up responsibilities as required by guidelines and rules in the developed markets.”

Subject E

”Property companies report more complex numbers but there is no standard format and no standard way for reporting for these companies...The reason that issuers are not doing that because they have the leeway of hiding things and producing numbers that may or may not good to investors (sic).”

“The RP or the Ratio Paragraph in the covenant can review lots of high standard information, including the pro-forma tests. The Proviso in the bond covenant lists out all the pro-forma test results, including Debt Incurrence Ratio Test, Interest Coverage Test, Accumulated Profit Test and so on. All these can enhance the information quality and standard of the company (sic).”

Subject C

Agency problem is difficult to address if the management is not primarily based in Hong Kong and assets may or may not be pledged or collateralized for the bond issue. The offshore subsidiary's board of directors may not fully represent the parents' corporate action or may not even speak on their parent's behalf. It is clear from the research analysts' perspectives that agency problem can easily take place if there are no regulatory rules restricting them from benefiting the management at the expense of the debt investors in lending funds or capital to the Chinese enterprises.

"Most China offshore deals are not guaranteed by the onshore parent. There may be dividend upstream restrictions, so that the offshore subsidiary can preserve working capital for debt repayment. However, the parent companies cannot act as the ultimate guarantor because of mainland China regulations...so they use offshore vehicles to lend to the onshore operating vehicle...hence, covenants may not have control beyond this jurisdiction"

Subject D

"The biggest problem for China high yield bonds is subordination, where no onshore assets can be pledged – British Virgin Island (BVI) or offshore financing vehicles' debts are basically not covered by any operating revenues or assets that are domiciled in China, and that's why based on this

problem, even if there is other fixed charge cover, it still cannot protect the bond holder. This is the biggest problem for Chinese bonds. However, if the indenture has the collateral and lien in place, that would make the debt more secure even under those kinds of subordination or dilution of bondholders claims (sic)."

Subject A

In particular, research analysts acknowledged the impact of experience in their judgment. Most believed that their judgment have an effect on the expected risk premium or credit valuation. This was especially so in the case of Chinese property credits, as most were skeptical of their own judgment in the area.

The transcripts include numerous comments and statements by credit research analysts. These include details reflecting the effect before and after covenant application on the Chinese credits. There were some conflicting statements on the subject of covenant relationships with bond spread or prices. These are:

"There is not really a very large discrepancy [on the number of covenants in U.S. and HK/China] based on my comparisons."

Subject A

"In an Asian context it would not take as much because high yield corporates would have stringent and standardized covenants in place ...few companies would have a defense set of covenants, covenants in place and would not recognize much difference here and there. Issuers cannot differentiate

between different covenants...Texhong Textile and West China Cement, on the other hand they would not look at their covenant before they decide on their valuation and issuers would regard cost as the most important pricing factor. The valuation would depend more on the credit quality instead (sic)."

Subject C

There are several rationales for the conflicting statements that will be deliberated in Chapter 5. One obvious explanation for the conflicting signals can be attributed to the time of data collection. The interviews were conducted in mid-2011, when Asian and global markets were experiencing extreme volatility. The volatility and noise in the market would need to be filtered out to extract attributable elements that pertain only to individual Chinese credits in the credit spread valuation process.

"If investors invest in longer maturity tenors and without the asset pledged security, covenants could serve as protection and valuation should reflect that. For instance, power utility companies could attach change of control put option and cross defaults to protect bond holders from subsequent dilution in case of bankruptcy (sic)."

Subject E

This thesis has been conducted across the span of three important events, namely the Asia epidemic crisis from 2003 to 2005, the global financial crisis in 2008 and the European financial crisis in 2010. Bankruptcy risk was mitigated in

China even during the credit crunch period in 2008. The prudent management of Chinese enterprises was a critical factor that helped companies avoid the worst. However, covenant structures were not widely used prior to these financial crisis events. Analysts doubted the possibility of quality changes in Chinese global credits on application of covenants in valuation after those market events.

“There have been 30 China and HK companies being investigated in the past few years and not many changes have been made to their borrowing practices. Light covenants are still the case even after the 2008 financial crisis; investors haven’t learned from their experience.”

“There are large carve outs in the Chinese global credit covenants in Road King Infrastructure and Sino Forest Corp, which allows them to participate in risky investments with their cash leakage. SPG Land has weak re-investment criteria which makes them vulnerable to volatility in the valuation of risky assets and undermines their abilities to make payments to bond holders.”

Subject C

“Enron and Lehman have proven that self-regulatory discipline is not important and Asia & China are not very different in this context. Unless covenants are subject to the legal but also criminal offense otherwise they may not be enough enforcement to push issuers in regulating their own corporate activities. The China property developers for instance, they are subject to the asset subordination in China, but yet they would not pledge and have any internal loan type of restrictions in their covenants (sic).”

Subject F

Analyst rationale was often contradictory regarding how covenants were applied in valuation, and whether effective information asymmetry and agency problem would exert a positive impact on credit spread pricing and credit valuation. These issues are discussed in the following sections. In fact, the interviewees did not express great concern about Financial Distress and Bankruptcy in the foreseeable future.

The attractiveness of bonds could differ according to the investment time horizon and other security specific and external factors. Any restrictive rules would offer different risk tolerance to the same Chinese companies. This would reflect a risk appearance similar to that of the credit research investors when applying different valuation philosophy.

"Spreads and valuations could also be improved by capital expenditure and debt leverage restrictions, control on the company cash flows, essentially use of cash, from investor's perspective that would really give control to the company. If covenants are tight, areas can be focused... can also offer values...For example, Chandra Asri, not a China case, their pricing is tight, investors are comfortable with the business and company, after several years they issue some compensation asking for consent to waive those covenant for good, and the bond still performs. Other examples in China including China Oriental and China Liansu also have full high yield covenant package which ensures bondholders' confidence to lend them capital at

good valuation. On the flip side of the token, the credits can also perform well after their IPOs (sic)."

Subject C

"[Covenants] protect investors, and should compensate investors and also issuers...Put structures can protect investors in the high yield space. But a good structure, say a 5 year bond with a 3 year put, when the bond trades at a tight spread, investors may not want to exercise the put option."

Subject D

Fraud is by far the most important corporate governance issue and agency problem is reflects the lack of transparency in Chinese enterprises. The research analysts held different views about how whether issuers and Chinese enterprises could bypass existing market standards through regulatory loopholes.

"Corporate governance is seriously treated enlighten by the China Forest incident; Covenants can restrict the management over control in the company and to include Income Baskets, Debt Incurrence Test and other Financial Ratio Test to keep the Chinese enterprise's financial in check. However, issuers can always compensate the bondholders by paying off for its breach in their covenants. That can deliberately self defeat the covenant purpose (sic)."

Subject F

“Agency problem is the root problem of corporate governance issues. Covenants could constrain China Forestry and Sino Forestry. Management could be separated from the ownership structure to prevent too much power, which they could misuse them. Shareholders do not necessarily get involved with the management in the case in U.S. But in China, the founders, family members and the State Provincial and the Mainland Government can concentrate the majority ownership. For instance, Evergrande is 67% owned by the Chairman; Liansu is 75% owned by the Chairman; Nine Dragons is 64% owned by the Chairwoman and her family. The combination of Chairman and CEO roles is a sub optimal position by developed market standards in corporate governance.”

“Hence, covenants are effective in controlling weak practices in Chinese enterprises, including merger and acquisitions, and/or restrict substantial payments in the form of dividend, which can effectively prevent any leads into other risks and issues (sic).”

Subject C

4.3.8 Due Diligence And Configural Decision Making

Research analysts are required to participate in site visits and meetings with corporate management for due diligence. Research credit analysts frequently conduct meetings with companies in accordance with their investment fiduciary.

“Syndicate debt capital market departments usually conduct due diligence on the credit’s background. Before formally announcing the deal, the three parties would have a corporate call with the company, and set out a list of due diligence questions to company; and if inconsistent with expectations, there will be no deal. That ensures the corporate is properly analyzed inside out.”

Subject D

“A separate job to go there and investigate, i.e. journalist or investigators, whatever they’re saying right or wrong with the management, as an analyst could review lots of information from face to face meetings (sic).”

Subject C

4.3.9 Restriction And Flexibility Tradeoffs

If the long term vision is to protect investment capital, the bank credit research analysts would consider using covenants for risk and valuation justification. However, investment credit research analysts would try to provide more flexibility to Chinese enterprises in order to provide room for more future earnings, so as to capture credit spread tightening or outperformance in return. That would have a counter effect even though both types of analysts are ultimately required to invest in a safe Chinese credit.

“It would be difficult to liaise with issuers to come up with protection, firstly they want to be more flexible and secondly, pricing on the borrowing rate would be under scrutiny.”

Subject E

4.3.10 Collateral, Seniority, Credit Rating

Findings in this thesis suggest that research analysts perceive collateral or asset pledges as the key that could eliminate bankruptcy costs under the provisions of covenants and indentures (Haugen & Senbet, 1988). A Chinese enterprise without asset subordination could provide security to debt holders if the events under the indenture agreements take place.

Research analysts would review these collateral provisions included in the indentures. In the event of liquidation, the asset backed collateral would ensure capital recovery in the event of back-to-back selling of the secured assets.

Although not a key research objective in this study, collateral is included in the research model as one of the other security specific risk factors that may affect debt valuation. Hence, collateral or asset pledges may cause deviations in the

stated results on bond covenants. This study finds that there may be impact from collateral on valuation.

The research supports the financial theory that collateral is associated with lower risk premiums or lower credit spreads. Collateral is normally associated with a higher probability of default. Research analysts confirm that collateral is required for riskier Chinese credits. However, secured credits imply lower losses upon default (Berger, Frame & Ioannidou, 2011).

However, this research does not support the financial theory for all types of collateral. In observably riskier borrowers for property type of collateral, lower losses on default credits for pledged deposits and bank guarantees may not apply (Berger, Frame & Ioannidou, 2011). That could be affected by the characteristics of the credit, and the types of pledges that are provided in the Chinese credits can reflect different collateral values.

This research confirms that the seniority of fixed income securities is an important factor when valuing Chinese credit spreads. The covenant protection in cross default and pari passu could rank bonds for same seniority. Senior bonds are more secure for investors when claiming assets that could have a chance of being diluted. Research analysts would take into consideration a senior holder who has precedence over other lenders and creditors of lower seniority in the company. Covenants that include security provisions can mitigate asset substitution problems (Smith & Warner, 1979).

Seniority is an exogenous variable that allows analysts to improve identification of the responses of Chinese credit returns (Cho, Kim & Shin, 2009). This research indicates that a normal compensation on the secured security should be reflected in the interest premium of credit spreads of the Chinese enterprise (Smith & Warner, 1979).

This research supports the financial theory that credit ratings represent the credit quality of Chinese enterprises. This is consistent with Marais, Schipper and Smith's (1989) study, which finds that credit ratings reflect the quality of a firm's business model. Furthermore, this research supports the idea that credit returns react positively following upgrades and negatively following downgrades, something that does not apply to non-investment grade or speculative grade credits (Cho, Kim & Shin, 2009).

These interview data findings reflect that the information asymmetry theory holds. Similar to credit ratings, covenants can reduce information asymmetry by providing information not only on rated credits but also on unrated credits, which are commonly found in Chinese enterprises (Katz, Salinas & Stephanou, 2009). The disclosure of credit ratings could alter a research analyst's perception of the credit.

The widespread and common use of credit ratings can also be explained by the background of analysts, many of who have gained experience from credit rating agencies at some point in their respective careers. Credit ratings are a major source providing analysts with information to assess the Chinese credit valuation (Duffie & Singleton, 2003). On the other hand, covenants are also used in a much broader context, as they can be applied to rated and non-rated credits.

This research also suggests that covenants can further enhance credit ratings as they provide more insight into and sensitive information about Chinese credits on a regular basis. The covenant is also similar to a credit rating watch list, in that it is a signal that research analysts are able to interpret. In addition, covenants are an endogenous factor varying over time through business cycles.

4.4 Integration Of Mixed Methods Data

The mixed method approach can provide context for quantitative verification and support for qualitative validation. This section consolidates the research findings and provides a comprehensive analysis of the determinant factors of credit research analysts.

4.4.1 Self-Insight

Qualitative and quantitative data show that analysts display limited self-insight investment analysis and evaluation process. The survey reveals that the subjective and analyst scores differ on relative value and expected risks. This illustrates that credit research analysts may overweight or underweight certain variables contrary to their investment process. This is consistent with research findings from the interviews. Some inconsistent and contradictory comments were observed, indicating that some analysts might lack clarity or experience in valuation processing. This would lead to an investment process that deviates

from their subjective weights, though most analysts tend to be consistent. In addition, analysts from large institutions usually have formal checklists for due diligence that enables them to verify the accuracy of their investment process.

4.4.2 Information Asymmetry

Information asymmetry was recognized as a statistically significant determinant of debt valuation. However, the influence of information asymmetry is mixed in the subjective weightings and analyst scores. This is also seen in the interviews. It was consistently cited by research analysts during the interviews, though opinion on its impact varied widely. Some regarded information asymmetry and disclosures of utmost importance, especially in an Asian setting. The presence of such covenants would allow a balanced transfer of information that would remove any discount on the bond valuation related to shrouded information and disclosure related uncertainties. Some interview participants regarded the factor as least important, noting that most characteristics of information asymmetry can be limited by effective control of agency problems through voluntary disclosures and stock exchange regulations.

4.4.3 Agency Problem

Agency problem was found to be a significant risk factor in influencing debt valuation. The effect size of the factor was also found to be high, ranking behind bankruptcy as the second highest. This is consistent with the subjective weights and observations of the interview participants, who noted that agency problems are directly related to corporate governance issues. Some observed that

corporate governance was the most difficult to assess aspect of valuation in China, an area that has recently been in the spotlight due to poor standards and highly concentrated ownership in Chinese enterprises. Some analysts also point out that independent directors, whose main task is improving corporate governance, may not be less competent than counterparts in developed countries. All these results reinforce the need for covenants to control and limit agency problems.

4.4.4 Financial Distress

Financial distress was recognized to be a statistically significant factor in determining debt valuation, though it is consistently ranked as average in subjective weights and analyst scores. Interview participants state that covenants protecting against financial distress can contribute to valuation by improving leverage ratios of issuers and enabling investments to be more focused when covenants are tight. In addition, liquidity would also be enhanced, resulting in higher repayment confidence and in confidence to lend money to issuers.

4.4.5 Bankruptcy

The effect of bankruptcy in debt valuation was recognized to be statistically significant but ranking according to subjective weights and analyst scores were inconsistent with this finding. Apart from the analyst scores of relative value, bankruptcy did not rank higher than other factors. Nevertheless, there was considerable support for bankruptcy among analysts. The majority of interview participants recognized bankruptcy to be the most important out of the four risk

pricing factors. This is also in line with the largest effect size for the factor. In addition, interactive effects with bankruptcy were among the top 3 largest effect sizes.

Chapter 5 – Conclusions

5.1 Introduction and Chapter Overview

This chapter builds on the literature review in Chapter 2 and the research results from Chapter 4. The risk pricing factors are discussed in relation to previous literatures to answer research question 1 (RQ1). This is followed by a review of the findings in configural cue processing to provide insight to hypothesis (H1), and a discussion of the self-insight findings to answer research question 2 (RQ2). An overall summary is then presented to answer research question 3 (RQ3). Next, the thesis goes over the practical implications and limitations of these findings before the final conclusion.

5.2 Collaboration of Findings

This section refers to related literature in previous sections that serves as a major building block in interpreting the findings of the research. It then discusses the findings with respect to each of the four independent variables and their impact in the regular credit evaluation process as suggested by the research findings and analyst insights.

5.2.1 Bond Covenants

In evaluating Chinese credits, research analysts typically go through attached covenants and indentures for clues. Covenants can be useful in functions such as constraining China debt issuers, which can be achieved through a set of restricting financial ratios (Smith & Warner, 1979). This would prevent firms from being overly aggressive in pursuing value-maximizing projects. Research analysts could assess the financial ratios and determine the aggressiveness of the firm's debt financing decision, and thereby the tolerable risk level for investments. Covenants set out in Indentures may involve limitations on certain financial ratios in order to prevent the firm from engaging in mergers.

The research analyst would evaluate the entitlement to make certain unilateral actions, such as the right to call the debt issue, to justify their decision on China spread valuation (Vu, 1986). The research supported two of the four related hypotheses. The information effect hypothesis and the restrictive covenant hypothesis are supported by this research. Research analysts believe that Chinese enterprises try to convey information about the firm's future performance through covenants. Further, the call action of the Chinese credit is to remove the restrictive covenants not contained in the indenture of the firm's other debt issues. The premium on calling the debt is the potential minimum opportunity costs that the firm must face (Smith & Warner, 1979).

This research also supports the two main functions (Paglia & Mullineaux, 2006), the ex-post function and the ex-ante function, which covenants provide and which research analysts regard as valuable inputs in their credit assessment

process. The perceived valuation should be reflected in the when-issued and post issued spread of the Chinese credits.

5.2.2 Information Asymmetry

This research supports the theory that information disclosures and effective communication can reduce information asymmetry, leading to an optimal way of financing in the perspective of Chinese enterprises (Myers & Majluf, 1984). That would reduce borrowing costs as higher transparency means that analysts demand a lower risk premium for uncertainties and unexpected events. If this rings true, debt would be one of the most effective funding sources. Chinese enterprises could then refrain from fund raising through issuing equity, which would adversely affect the shareholder base through unintended dilution. This is also in line with the financing order as suggested by the Pecking Order theory.

This research also supports the interaction effect of information asymmetry and agency problems. Information disclosure and effective deploys of information can effectively control corporate governance and related agency problems (Ho, 2003). One of the tasks of credit analysts is to identify and prevent investment in Chinese enterprises that engages in fraud and accounting shenanigans. Accounting reports are relatively easy to manipulate. The thesis test results suggest that covenants with protection against information asymmetry could have a cohesion effect with covenants against agency problem to resolve issues with accounting reports (Chang & Yu, 2003).

The financial theory on capital structure determination with respect to coverage by the brokerage analyst is not supported in this research (Chang, Dasgupta & Hilary, 2003). Proper disclosure of corporate actions and proper documentation that lists the risk factors for the Chinese credits is required for research analysts to properly assess Chinese enterprises. This research suggests that relying on the prospectus alone would not enable sufficient information disclosure for Chinese enterprises. Result findings from this research suggest that covenants could serve that purpose. In addition, Chinese credits with proper covenants are perceived positively by research analysts and may improve their credit spread values (Chang, Dasgupta & Hilary, 2003). This research also supports the Signaling Theory (Elfakhani, 1995), which states that covenants can provide effective communication between Chinese enterprises and research analysts. Furthermore, ex-post and ex-ante effects are seen positively by research analysts in the thesis results.

Further, information asymmetry is influential on Chinese credit spreads when research analysts assess China debt credits in conjunction with bankruptcy. As in the cross interview data analysis, Subject C pointed out that China property companies report more complex numbers but without a standard format or a standard way of reporting. If covenants could be applied to standardize information disclosure, risk should be reflected in the China debt credit spread valuation accordingly. According to Subject C, the RP or the Ratio Paragraph in the covenant can provide a lot of high quality information, including the pro-forma tests in the Proviso in the bond covenant. Debt Incurrence Ratio Test, Interest Coverage Test, and Accumulated Profit Test are also included in the covenant.

5.2.3 Agency Problem

Protection against agency problems has been found to be associated with reduced Chinese credit risks, summarizing that this factor has a positive effect on credit spread valuation. The results of this study support the existence of agency problems in Chinese enterprises and covenants against it could offer protection against the firm management's excessive risk taking in their operations (Smith & Warner, 1979).

The thesis results also suggests that research analysts perceive Chinese enterprises issuing risky bonds as a potential factor influencing the firm's operating characteristics and inducing extreme debt financing decision. The research analysts suggest that without covenants, lending practice can be loose and may benefit stockholders to the detriment of bondholders. This supports Smith et al.'s (1979) theory that conflicts can arise between stockholders and bondholders in cases of dividend payments, claim dilution, asset substitution, and underinvestment.

Covenant protection can include dividend payout restrictions to avoid agency conflicts that transfer significant amounts of free cash flow to stockholders at the expense of the bondholders' debt repayment ability. Research analysts suggest that covenants can include cross default clauses to prevent late comers in debt financing that might dilute the asset claims and suggest that negative pledges could prevent asset substitution (Smith et al., 1979). Hence, Chinese credit valuation can be enhanced with proper covenants in place, which can prevent Chinese credit holders from bearing most of the downside risk. This would also be fairer in terms of the treatment of stockholders and credits holders.

Smith et al.'s (1979) results are in line with this research. Their financial theory finds that restrictive dividend covenants in Chinese credit context can lessen the problem of under-investment. If Chinese enterprise can structure its claims properly, stockholders and credit holders would enjoy the same wealth redistribution and both investors would be indifferent. This would effectively control over investment without additional cost.

Bradley and Roberts (2003) identify four main agency costs: unauthorized distribution, liquidating the firm's assets, fraudulent corporate activities, and under-investments. These can be reduced by the inclusion of relevant covenants. This research is consistent with the literature that research analysts would demand higher Chinese credit spreads if there is no dividend payout restriction to prevent Chinese enterprises from transferring their free cash flows upstream to their parent companies. Research analysts would also demand higher compensation if there is no restriction on sale of assets to prevent asset sale proceeds from being distributed to stockholders. The current research reinforces the Costly Contracting Hypothesis of Smith and Warner (1979) and supports the argument by Bradley and Roberts (2003).

On the other hand, the thesis results do not agree with Ho's (2003) arguments that certain Chinese enterprises such as State Government owned and controlled firm could neglect to perform their fiduciary duties on behalf of minority shareholders. This research covers most of the Chinese credits in the Asia credit universe, including some major State Owned Enterprises (SoEs). Debt holders represent only minority parties as debt only consummates a small percentage of the market capital of SoEs. However, research analysts would agree that SoEs could exercise much better management control than other Chinese enterprises.

The interview result findings of this thesis suggest that Chinese enterprises with covenants protecting against agency problems can lead to better corporate governance control. The interview result findings also show that research analysts do not require SoEs to include complex covenants as an investment prerequisite.

The thesis results contradict Xiao's (2005) financial theory, that research analysts believe that credit risks in China SoE's ownership would demand lower credit risk premiums, as they expect the government is disciplined enough to control the enterprise and prevent corruption. The Change of Control covenant protection can be applied to such securities with Chinese government ownership, and not vice versa as indicated by Xiao (2005). Social responsibility may not be a high priority of mainly government owned Chinese enterprises. The tremendous growth in budget revenues and foreign capital in the last decades could be the reason why the Chinese government relies less on SoEs to distribute wealth, a situation that contradicts Xiao's (2005) theory of the ineffective agency problem of SoEs.

As a whole, the current research suggests that the agency problem in Chinese credits is vulnerable. Research analysts support the fact that too much constraint would lead to under-utilization of the enterprise's resources. However, over investment could also pose a threat if Chinese enterprises were to invest aggressively (Eisenhardt, 1989; Bolton & Scharfstein, 1990). These result findings support the idea that covenants need to be balanced with opportunities and with protection by relaxing financial constraints. Relaxed and strict covenants are a tradeoff between deferring predation and mitigating incentive problems (Bolton & Scharfstein, 1990). This research concurs with Bolton and

Scharfstein's contracting theory (1990) that rational predation is in the best interest of the research analyst's credit assessment process.

5.2.4 Financial Distress

The interview findings of this thesis suggest that the recovery rate of Chinese credits tends to be lower than any comparable credits outside China. This coincides with the Tradeoff Theory where operating risk incurred using debt leverage is perceived to be substantially higher in a Chinese credit market context (Bishop et al., 1992).

This research agrees on the concept of working capital as part of the evaluation process to avoid any kind of operating and business risks incurring in the Chinese enterprises (Bishop et al., 1992). However, the research does not support the financial theory of Weinraub and Visscher (1998), namely that Chinese enterprises in property and industrial sectors were generally aggressive in working capital management. Aggressive working capital management can induce a liquidity crunch in the firm when there is a sudden or unexpected disruption in the firm's finances. This raises the probability of financial distress in Chinese property developer credits. Research analysts identify negative pledge and restrictive covenants as effective in preventing Chinese credits investments from becoming financially distressed (Erickson & Trevino, 1994). Off balance sheet financing, also commonly found in Chinese credits, not only increases the chance of financial distress, but also risk premiums, as analysts would perceive the company now exposed to the risk of financial distress.

Furthermore, analysts expect Chinese credits with higher perceived risks to have more stringent covenants (Nash, Netter & Poulsen, 2001; Paglia & Mullineaux, 2006). The ex-post and ex-ante function of covenants can effectively manage financial distress risks before and after Chinese credit issuance.

With respect to the agency problem, this thesis suggests that Chinese enterprises could defer bankruptcy by issuing senior debts in order to dilute debt holder wealth and preempt credit distress (Nash et al., 2001). Covenants such as Limitation in Indebtedness, Debt Service Coverage Ratio, and Free Cash Flows to Debt Service Ratio are covenants that can effectively control such distress situations.

The thesis results coincide with Bharath et al.'s financial theory (2005) that unfavorable covenants or covenant-lite Chinese credits would normally be associated with higher perceived risk and credit risk premiums.

5.2.5 Bankruptcy

This research was conducted over the course of three major financial crises and events namely, the Asia epidemic crisis, the Global Financial Crisis in 2008 and the European financial crisis in 2010. There has not been any major default of Chinese credits during those periods. The default rate reached its cyclical bottom of zero defaults in 2011 (Moody's, 2012). However, there were several borderline cases in which Chinese corporates went into default possibly caused by loose China debt covenants. The covenants of Chinese enterprises are yet to be tested on how they could affect their credit spreads and whether those China debt credit

risk premiums were enough to compensate for investors' risk taking. It would be interesting to explore this question in future research studies.

From the effect size or the analyst scores on relative value statistics in the previous chapter, covenant risk protection against bankruptcy ranks as the highest in terms of influence on Chinese debt's relative values and perceived risk. This is followed by agency problems and financial distress in the factorial analysis. The pre-eminent effect of bankruptcy is evidenced in the interactive effects of the factors, as the interactive effects in conjunction with bankruptcy topping the list.

Alan Schwartz's Normative Theory of Business Bankruptcy (2005) states that business bankruptcy law should reduce the costs of debt capital. This is also in-line with Dailami and Hauswald's financial theory (2003), which refers to regulations, the legal system, and country risk as the most significant factors in Chinese credit spread valuation. Both literatures are consistent with this research. SoEs would generally be perceived with less credit risk, and in case of private Chinese enterprises, covenants can represent the legal system to minimize and resolve disruptions caused by firm irregularities and corruptive behavior.

As the cost of capital of Chinese enterprise decreases, the perceived risk of Chinese credits also decreases, which reduces the probability of the enterprise falling into bankruptcy. Analysts also look into the default probability and recovery rates to assess the likelihood of the Chinese enterprise going into bankruptcy (Covitz & Han, 2004). The thesis results also prove that when covenants take into account bankruptcy protection, such as negative covenants, the market

value of the assets of the Chinese enterprise relative to its liability level can increase substantially.

One important aspect identified by this research is consistent with Jarrow and Purnanandam (2004). Their financial models, which use the Reduced Form Approach, identify that defaults occur before insolvency or bankruptcy and where the Chinese firm's net assets are negative. Current research suggests that research analysts would examine the Chinese enterprise's net tangible assets, which should be included in the covenant as a ratio.

Qualitative data from interviews are consistent with this finding, in that covenants constrain corporate cash flows and limit the methods in which corporate management could influence work capital policy. Fan and Sundaresan (2000) argue that strategic default and debt re-negotiation of corporate management could ultimately force the corporate to go into bankruptcy. Analysts agree that bankruptcy is the last resort in extracting values attached to the credit instruments (Titman & Wessels, 1998; Covitz & Han, 2004; Alan & Schwartz, 2005).

5.3 Research Analyst's Credit Evaluation Process

5.3.1 Configural Cue Processing

This thesis investigates the cue processing of research analysts analyzing Chinese enterprise credits. There is found to be configural cue processing when

assessing covenants with regard to valuation. As such, this research adds to the support for configural cue processing of research analysts in previous studies (Libby, 1981; Mear & Firth, 1987; Slovic, Fleissner, & Bauman, 1972).

It has been observed that configural cue processing is a significant contributor to the overall valuation. In fact, the interactive effects outweigh the main effects in this study. In both sets of experiment data, the effect sizes of interactive effects were larger than main effects. However, both effects are generally in agreement. Factors that appear to be strong in their main effect are also shown to be strong when processed configurally. This view is in convergence with that in the interviews.

Bankruptcy was shown to be most significant as an individual factor or combined with other factors, while the strongest interactive effect was between bankruptcy and agency. This is supported by literature and empirical evidence from interviews. Costs associated with bankruptcy posed the greatest risk to investors, therefore it was of utmost importance to minimize these costs through preventive measures and through determining an optimal bankruptcy procedure which would maximize recovery rates.

Contrary to common thought, more interactions did not lead to a higher effect size. Interactions that consisted of three factors were constantly ranked lower than those with two interactions. This sheds light on the configural cue processing of analysts as recognizing the constraining effects of overly restrictive covenants on bonds. Interactions such as bankruptcy, agency and information asymmetry were lowly ranked possibly due to the overlapping functions of the

factors. This became more restrictive than protective and hindered a firm's operating health

5.3.2 Self-Insight

Despite using experienced analysts as the unit of analysis, which should improve credibility (Maines, 1995), this thesis shows that research analysts have a limited degree of self-insight into the credit evaluation process of Chinese credits. This finding conflicts with the work of Feldman & Arnold (1978), who state that the more work experience research analysts have, the higher the degree of self-insight (Feldman & Arnold, 1978).

Limited self-insight can be attributable to the cognitive tendencies of humans to underweight important decision variables, while overweighting less important ones (Slovic & Lichtenstein, 1971). In the subjective weights, participants ranked Agency Problem as the most influential factor, while in the analyst scores, they underweighted Agency Problem as the third or least important factor. Another reason for limited self-insight might have to do with surveys. This thesis deployed surveys as a data collection tool for their cost effectiveness and because they provide better scope. However, surveys also deter the utilization of self-insight in the process by limiting higher order cognitive ability, as found by Nisbett and Wilson (1977), a problem that was solved by integrating interview analysis into the results of the subjective self-insight analysis and the analyst score analysis of weightings from the survey (Savich, 1977).

In addition to displaying poor self-insight in the subjective weight and analyst scores comparison, there were also inconsistencies in the analysts' comments. Some analysts, when discussing high yield debt, stress the importance of a defensive set of covenants in determining bond prices. However, they also state that issuers often ignore covenants when structuring debt and focus their valuation based on credit quality instead. This suggests limited self-insight in analysts and provides further support to previous literature. (e.g. Mear & Firth, 1987; Slovic, Fleissner, & Bauman, 1972; Wright, 1977)

While research analysts displayed poor insight, Mear and Firth (1987) found that this limitation did not significantly inhibit analysts' subjective weight models from reproducing their actual judgment evaluations. Analysis by Mear and Firth (1990) provides evidence that research analysts are generally consistent in formulating evaluations but displayed little consensus between subjects and across judgment tasks.

5.4 Theoretical Implications – The Covenant Valuation Model

This research model is based on the foundation of information asymmetry, agency problem, financial distress, and bankruptcy theories. These theories share a common theoretical standpoint that proves that covenants protecting against these factors can have direct and indirect effects on the Chinese credit spread valuation.

Covenants can enforce full disclosure of financial information under a well-kept agreement and provide research analysts with thorough detail to properly examine the credits. This can reduce information asymmetry and allow research analysts to properly assess the valuation and risks of the credit.

Combined with greater information disclosure reflected in the Chinese credit's fundamentals, agency problems can be reduced through proper constraints and negative covenants, which would require the Chinese enterprise management to adhere to better corporate governance practice throughout the research analyst's investment horizon.

Research analysts' study the net operating cash flows and other related financial ratios as provided by covenant protection. Previous literature's valuation models or analyst evaluation process in theory factored in financial distress through the barrier threshold. Financial distress can affect Chinese credit spreads, and research analysts can demand higher risk premiums if the Chinese enterprise is under distress. When enterprise's debts exceed the liquid assets and equity values, it is considered to be under serious financial distress.

In summary, the model is consistent with the findings of previous literature. The qualitative results support the conceived variables and reaffirm the configural cues credit research analysts use in the evaluation process.

5.5 Practical Implications

The thesis results not only have practical implications for bank and investment analysts but also provide practical information for policy makers and industry participants relevant to economic events in global debt capital markets. There is an immediate need to apply legal standards including establishing guidelines and financial market procedures for statutes in China covenants. This will not only benefit industry practitioners but also help to establish documentation in the Chinese credit market, regardless of the currency in which it is denominated.

This research explores the insight of research credit analysts and how they perceive valuation of Chinese credits in the credit evaluation process. Their participation in Chinese credit markets influences market valuation with relation to their perceptions of value. Consequently, increased analyst participation will draw higher attention to the debt capital market system and to documentation standards that can improve industry practice and behavior. The thesis results will help policy makers deepen and enhance the documentation pricing mechanism and practitioner evaluation process regarding due diligence.

As demonstrated by the quantitative findings in this thesis, covenants have a definite impact on bond valuations, whether through their main or interactive effects. Among which, protection against bankruptcy is most highly regarded. This indirectly points to weak controls and standards in the current Chinese credit market, and has reinforced the need to strengthen the market system.

This point is reiterated in interviews with industry practitioners, some of which have cited examples of poor corporate governance in Chinese enterprises and their concern over the financial stability of such firms. Another commonly mentioned issue associated with China is the high family ownership of enterprises. This leads to agency problems and possibly risk of bankruptcy due to overly aggressive investment decisions. The top ranking of the interactive effect of agency and bankruptcy proves that this is a valid concern.

These insufficiencies in the protection against bankruptcy risks, agency problems, information asymmetry and financial distress due to inadequate control and standards in China are reflected in the high yields of Chinese credits. That said, there is room for improvement in this area and covenants will continue to act as a proxy to the law as long as these insufficiencies persist. Covenants should act as an important aspect of the investor evaluation process and should also be observed by issuers due to its impact on valuation.

For analysts in particular, covenants with protection against bankruptcy risks have the largest effect on valuation, and should receive heavier weighting in the valuation process relative to other covenants. This includes clauses such as Cross Default, Limitation on Sale and Leaseback and Limitation on subsidiary Debt. This should be viewed in combination with other covenants which may further enhance the valuation of the debt. On top of that, analysts should also consider establishing clear guidelines and processes prior to engaging in investments. This will help ensure that limited self-insight will not hinder the selection of securities.

5.5.1 Limitations

A limitation of this thesis is that the result findings are applicable only to Chinese credits denominated in USD and not to the new generation of China Yuan credits that are gaining prominence in the China offshore market, i.e. Hong Kong. It would be fruitful to continue to explore this new Chinese credit market in Hong Kong.

Secondly, the market conditions at the time of data collection were volatile such that Chinese credit values were driven by macro situations, including the Global Financial Crisis and the European fiscal crisis, both of which have affected debt markets across different markets and not just Chinese credits.

Thirdly, interview subjects were requested to comment and express their expectations of the relative values and strategic values of hypothetical credits assuming all other factors constant. The actual returns generated for Chinese credits could be more absolute and could deviate from strategic values in relative spread values within a real life setting. Additionally, the participants consisted of both investment analysts and bank analysts, which may place different emphasis on the risk pricing factors. This was previously discussed in Section 3.4.2.

Lastly, the self-insight of research analysts applying their assessments and comments in an Asia context and market conditions is also a limiting factor of this research.

5.5.2 Further Examinations in The Chinese Credit Field

This research focuses on how to understand covenants through the fresh perspective and context of Chinese enterprise credit spread valuation. It offers new findings regarding the applicability of the Chinese context to other markets and explores financial documentation in greater detail than other studies on the same topic. Furthermore, in examining whether debt covenants are part of the cost reduction process would help explain whether the covenant can provide better protection for debt investors.

Aside from covenant factors, other factors mentioned in the thesis model may impact the valuation decision of analysts. These factors are introduced as a minor consideration and covered briefly in the literature. However, they may add valuable insight for further research. These include the external risk factors of country risks, transaction costs, and taxes, as well as the other security specific risk factors of indentures, seniority, credit rating, and collateral.

Data collection was conducted in normal operating environments and it may be worthwhile to examine Chinese enterprise credit covenants under conditions of extreme volatility. This would establish whether the credit evaluation process by research analysts is consistent in different cycles, through calm and volatility. More in-depth study of these areas and their effect on valuation and covenants is left for further research.

5.6 Conclusion

This paper analyses the effects of covenants on Chinese credit valuation with different factors. One advantage of using covenants is that they are endogenous, a feature that may vary depending on different levels of information disclosure. They can protect against poor corporate governance, prevent distress by protecting against over-leveraging financially, and ultimately reduce the chance of bankruptcy caused by impact from aggressive operating behaviors of the Chinese enterprise. Results of this study imply that covenants can affect research analysts in how they process information about Chinese credits and review Chinese enterprise profiles and characteristics.

The thesis identifies 14 covenants typically used in Chinese credit valuation. The four main risk pricing factors on the valuation of Chinese credits are measured using subjective weighting and analyst scores techniques. The current research assesses the relationship between the statistical descriptions of the research analysts' judgment and a subjective description of those judgments (Ashton, 1974), which suggests that bankruptcy is the dominant influence on the research analyst's decision about Chinese credit spreads (Research Question 1.1), and agency problem is the second largest influence significant in the statistics (Research Question 1.2). Financial distress and information asymmetry protection factors, although demonstrated to be statistically significant, are weaker and show relatively less influence on Chinese credit spreads (Research Question 1.3 and 1.4). Aside from the sum of square errors showing that Bankruptcy ranks among the highest, the interview data also indicates that covenants could protect investors and reduce risk, and that bankruptcy is considered one of the most influential factors among the four risk pricing factors.

Hypothesis 1 suggests that research analysts process information configurally when analyzing Chinese enterprise credits. The thesis results support this conclusion because the interaction effect is statistically significant between all factors. In addition, total interaction effect accounts for a significant percentage of the overall effect. This is shown on Table 6 and Table 8 in Chapter Four.

The configural cue process of the analysts proved that bankruptcy protection could improve valuation of Chinese bonds that are closely associated with the interaction effects of agency problem and bankruptcy factors (Slovic, 1969; Ashton, 1974). Information asymmetry factor is ranked among the lowest sum of square errors, and is less strongly associated with financial distress and bankruptcy in the factorial analysis. This contradicts ex-ante information issues identified by Paglia & Mullineaux (2006), in that information may not be protected by covenants.

The level of self-insight for research analysts making valuation decisions by bond covenants are limited (Research Question 2). This is evidenced by conflicting rankings in the subjective weights and analyst scores for relative value and perceived risk. Further support is provided in the sometimes inconsistent statements made by analysts in the interviews.

As a result of significant main and interactive effects, covenants may contain more ex-ante and ex-post information than credit ratings, which is why credit analysts may also weight them more heavily than credit ratings, which constitute an endogenous factor. Furthermore, covenants can act as the legal framework complementing the pledge and seniority of Chinese credit's structure. The idea that analysts assess Chinese bond valuation according to configural processing

cues and that there is limited self-insight is proven by the interview data and through factorial analysis (Joyce, 1976; Mear & Firth, 1987; Ganzach, 1997). Together these findings enable a more informed understanding of covenants when valuing Greater China bond issues.

References

Abor, J. (2005). The Effect of Capital Structure on Profitability: An Empirical Analysis of Listed Firms in Ghana. *The Journal of Risk Finance*, 6(5), pp. 438-445.

Adnan, M. A., & Muhammad. (2007). Agency Problems in Mue Rabah Financing: The Case of Sharia (Rural) Banks. *IIUM Journal of Economics and Management*, 15(2), pp. 219-243.

Akhtar, S. (2004). Australian Multinational and Domestic Corporations Capital Structure Determinants: Australian National University

Allen, D. E. (1991). The Determinants of the Capital Structure of Listed Australian Companies: The Financial Manager's Perspective. *Australian Journal of Management*, 16(2), pp. 103-128.

Al-Sakran, S. A. (2001). Leverage Determinants in the Absence of Corporate Tax System: The Case of Non-Financial Publicly Traded Corporations in Saudi Arabia. *Managerial Finance*, 27(10/11), pp. 58-86.

Altman, E. I. (2006). Default Recovery Rates and Lgd in Credit Risk Modeling and Practice.

Amidu, M., & Abor, J. (2006). Determinants of Dividend Payout Ratios in Ghana. *The Journal of Risk Finance*, 7(2), pp. 136-145.

Amirshahi, M. (1997). An Empirical Study of Management Value Systems and Decision-Making Styles among the Managers in Iran.

Anaf, S., & Sheppard, L. A. (2007). Mixing Research Methods in Health Professional Degrees: Thoughts for Undergraduate Students and Supervisors. *The Qualitative Report*, 12(2), 184-192.

Anderson, R. W., & Sundaresan, S. (1996). Design and Valuation of Debt Contracts. *The Review of Financial Studies*, 9(1), 37-68.

Artzner, P., & Delbaen, F. (1992). Credit Risk and Prepayment Option. *Astin Bulletin*, 22(1), pp. 81-96.

Asher, A. (2004). *Determining Capital: Messy Targets and Smoother Dividends*. Macquarie University, Australia.

Ashton, R. H. (1974). Cue Utilization and Expert Judgements: A Comparison of Independent Auditors with Other Judges. *Journal of Applied Psychology*, 59(4), pp. 437-444.

Asquith, P., & Wizman, T. A. (1990). Event Risk, Covenants, and Bondholder Returns in Leveraged Buyouts. *Journal of Financial Economics*, 27, pp. 195-213.

Attenborough, N., Williams, M., Hern, D. R., Jung, H. L., & Priestly, P. R. (2000). *The Cost of Capital Estimation for Fixed Telecommunication Services*. London: NERA.

Babenko, I. (2003). Optimal Capital Structure of the Firm in the Presence of Costs of Financial Distress. *EFA 2004 Maastricht Meetings Paper No. 5179*.

Bai, C.-E., Li, D. D., Tao, Z., & Wang, Y. (2001). A Multi-Task Theory of the State Enterprise Reform: The University of Hong Kong.

Baker, M., & Wurgler, J. (2002). Market Timing and Capital Structure. *The Journal of Finance*, 57(1).

Barnea, A., Haugen, R. A., & Senbet, L. W. (1980). A Rationale for Debt Maturity Structure and Call Provisions in the Agency Theoretic Framework. *The Journal of Finance*, 35(5), pp. 1223-1224.

Barr, G., & Standish, B. (2002). Modelling the Economics of Gaming in South Africa. *Journal of Gambling Studies*, 18(4), pp. 371-397.

Bathala, C. T., & Carlson, S. J. (1995). The 1986 Tax Reform Act and Strategic Leverage Decisions. *The Journal of Financial and Strategic Decisions*, 8(2), pp. 57-64.

Beatty, A., Liao, S., & Weber, J. (2010). *Evidence on the Determinants and Economic Consequences of Delegating Monitoring*. The Ohio State University.

Bebchuk, L. A., & Fried, J. M. (2003). Executive Compensation as an Agency Problem. *Journal of Economic Perspectives*, 17, pp. 71-92.

Bechara, A. (2003). Risky Business: Emotion, Decision-Making and Addiction. *Journal of Gambling Studies*, 19(1), pp. 23-51.

Beck, T., Demirguc-Kunt, A., & Maksimovic, V. (2002). Financing Patterns around the World: The Role of Institutions, *Policy Research Working Paper Series* (Vol. 2905): The World Bank.

Beckstead, J. W. (2007). A Note on Determining the Number of Cues Used in Judgment Analysis Studies: The Issue of Type II Error. *Judgment and Decision Making*, 2(5), 317-325.

Berger, E., Klein, D., & Sheriff, E. (2000, July 2000). A Convertible Model with Stochastic Credit Spread. *Bloomberg Magazine*, pp. 114-118.

Bethell-Jones, R., Harvey, R., Kensell, S., & Polglase, T. (2007). *Covenant-Lite in Leveraged Credit Agreements*: Allen & Overy.

Bethell-Jones, R. J. S., Harvey, R. M., Kensell, S. E., & Polglase, T. (2007, 21 June 2007). *Covenant-Lite in Leveraged Credit Agreements*. Retrieved 2010-02-04

Bhanot, K., & Mello, A. S. (2006). Should Corporate Debt Include a Rating Trigger? *Journal of Financial Economics*, 79, 69-98.

Bharath, S. T., Sunder, J., & Sunder, S. V. (2005). *Accounting Quality and Debt Contracting*. Working Paper.

Bielecki, T. R., Jeanblanc, M., & Rutkowski, M. (2004). Modeling and Valuation of Credit Risk: CIME-EMS Summer School.

Bienz, C., & Hirsch, J. (2006). The Dynamics of Venture Capital Contracts. *The Centre for Financial Studies Working Paper Series*, 2006/11.

Bishop, S., Crapp, H., Faff, R., & Twite, G. (1992). In *Corporate Finance* (3 ed., pp. 380-413). Sydney: HRW.

Black, F., & Cox, J. C. (1976). Valuing Corporate Securities: Some Effects of Bond Indenture Provisions. *Journal of Finance*, 31(2), 351-367.

Black, F., & Scholes, M. (1973). The Pricing of Options and Corporate Liabilities. *The Journal of Political Economy*, 81(3), 637-654.

Boateng, A. (2004). Determinants of Capital Structure: Evidence from International Joint Ventures in Ghana. *International Journal of Social Economics*, 31(1/2), pp. 56-66.

Bolton, P., & Scharfstein, D. S. (1990). A Theory of Predation Based on Agency Problems in Financial Contracting. *The American Economic Review*, 80(1), pp. 93-106.

Bouwman, M. J. (1983). Human Diagnostic Reasoning by Computer: An Illustration from Financial Analysis. *Management Science*, 29(6), 653-672.

Bouwman, M. J., Frishkoff, P. A., & Friskoff, P. (1987). How Do Financial Analysts Make Decisions? A Process Model of the Investment Screening Decision. *Accounting, Organizations and Society*, 12(1), pp. 1-29.

Bradley, M., & Roberts, M. R. (2003). *Are Bond Covenants Priced?* , Duke University.

Bradley, M., & Roberts, M. R. (2004). *The Structure and Pricing of Corporate Debt Covenants*. Duke University.

Brennan, M. (1992). Techniques for Improving Mail Survey Response Rates. *Marketing Bulletin*, 3(4), 24-37.

Brown, D. T., Ciochetti, B. A., & Riddiough, T. J. (2003). Theory and Evidence on the Resolution of Financial Distress. *Mimeo, University of Florida*.

Bryman, A. (2004). Integrating Quantitative and Qualitative Research: Prospects and Limits. *ESRC Research Methods Programme, Vol. 11*.

Cantillo, M. (2003). *A Theory of Corporate Capital Structure and Investment*. Universidad de Costa Rica.

Cao, M., & Wei, J. (2000). Vulnerable Options, Risky Corporate Bond, and Credit Spread. *The Journal of Futures Markets*, 21(4), pp. 301-327.

Carpenter, R. E. (2003). Slot Machine Gambling in Maryland: An Economic Analysis: Maryland Institute for Policy Analysis and Research, UMBC.

Cathcart, L., & El-Jahel, L. (1998). Valuation of Defaultable Bonds. *The Journal of Fixed Income*, 8(1), 65-78.

Cespa, G., & Cestone, G. (2002). *Stakeholder Activism, Managerial Entrenchment, and the Congruence of Interests between Shareholders and Stakeholders*. Unpublished manuscript.

Chang, C. (1993). Payout Policy, Capital Structure, and Compensation Contracts When Managers Value Control. *The Review of Financial Studies*, Vol. 6(4), pp. 911-933.

Chang, C., & Yu, X. (2003). Informational Efficiency and Liquidity Premium as the Determinants of Capital Structure, *14th Annual Conference on Financial Economics and Accounting*.

Chang, X., Dasgupta, S., & Hilary, G. (2003). *Analyst Coverage and Capital Structure Decisions*. Unpublished Working Paper.

Chewning, E. G., Jr., & Harrell, A. M. (1990). The Effect of Information Load on Decision Makers' Cue Utilization Levels and Decision Quality in a Financial Distress Decision Task. *Accounting, Organizations and Society*, Vol. 15(6), pp.

Chiarella, C., & El-Hassan, N. (2003). *Pricing American Interest Rate Options in a Heath-Jarrow-Morton Framework Using Method of Lines*. University of Technology, Sydney.

Choy, A. K., & King, R. R. (2002). An Experimental Investigation of Audit Decision-Making: An Evaluation Using System-Mediated Mental Model Theory. *Washington University*.

Christensen, H. B., & Nikolaev, V. V. (2010). *Capital Versus Performance Covenants in Debt Contracts*. The University of Chicago, Chicago.

CITIC Securities Corporation Limited. (2009). *Introduction of Chinese Debt Capital Market from Private Sector Perspective*. Paper presented at the ABMI Conference.

Clement, M. B. (1999). Analyst Forecast Accuracy: Do Ability, Resources, and Portfolio Complexity Matter? *Journal of Accounting and Economics*, Vol. 27, pp. 285-303.

Clinch, J. J., & Keselman, H. J. (1982). Parametric Alternatives to the Analysis of Variance. *Journal of Educational Statistics*, Vol. 7(3), pp. 201-214.

Collins, D., & Lapsley, H. (2003). The Social Costs and Benefits of Gambling: An Introduction to the Economic Issues. *Journal of Gambling Studies*, Vol. 19(2), pp. 123-148.

Combarnous, F., & Rougier, E. (2010). *Institutions, Socio-Economic Models and Development: An Overview of the Literature and a Methodology*. Paper presented at the Ifo / CESifo & OECD Conference on Regulation, CESifo Conference Centre, Munich.

Cook, R. L., & Stewart, T. R. (1975). A Comparison of Seven Methods for Obtaining Subjective Descriptions of Judgmental Policy. *Organizational Behavior and Human Performance*, Vol. 13, pp. 31-45.

Covitz, D., & Han, S. (2004). *An Empirical Analysis of Bond Recovery Rates: Exploring a Structural View of Default*. The Federal Reserve Board.

Crooke, A. (2007). *Trends and Outlook for the Asian Credit Markets*. Paper presented at the Maximum Yield Forum 2007, Hong Kong, Singapore.

Dahlquist, M., & Hasseltoft, H. (2012). *International Bond Risk Premia*. Swiss Finance Institute, Geneva.

Dailami, M., & Hauswald, R. (2001). Contract Risks and Credit Spread Determinants in the International Project Bond Market. *The World Bank Conference*.

Dailami, M., & Hauswald, R. (2003). The Emerging Project Bond Market: Covenant Provisions and Credit Spreads. *The World Bank: Policy Research Working Paper*, 3095.

Dangl, T., & Zechner, J. (2002). Credit Risk and Dynamic Capital Structure Choice, *EFA 2001 Barcelona Meetings*.

Dangour, A. D., Albala, C., Aedo, C., Elbourne, D., Grundy, E., Walker, D., et al. (2007). A Factorial-Design Cluster Randomised Controlled Trial Investigating the Cost-Effectiveness of a Nutrition Supplement and an Exercise Programme on Pneumonia Incidence, Walking Capacity and Body Mass Index in Older People Living in Santiago, Chile: The Cenex Study Protocol. *Nutrition Journal*, Vol. 6(14).

DeAngelo, H., & DeAngelo, L. (1990). Dividend Policy and Financial Distress: An Empirical Investigation of Troubled Nyse Firms. *The Journal of Finance*, 45(5), 1415-1431.

DeAngelo, H., & Masulis, R. W. (1980). Optimal Capital Structure under Corporate and Personal Taxation. *Journal of Financial Economics*, 8, 3-29.

Demirguc-Kunt, A., & Maksimovic, V. (1999). Institutions, Financial Markets, and Firm Debt Maturity. *Journal of Financial Economics*, 54, 295-336.

Demirgüç-Kunt, A., & Detragiache, E. (2000). Does Deposit Insurance Increase Banking System Stability? An Empirical Investigation. *The World Bank, Working Paper*.

Demirgüç-Kunt, A., & Huizinga, H. (1998). Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence. *The World Bank, Working Paper*.

Dillman, D. A. (1978). *Mail and Telephone Surveys: The Total Design Method*. New York: John Wiley.

Dillman, D. A. (1991). The Design and Administration of Mail Surveys. *Annual Review of Sociology*, Vol. 17, pp. 225-249.

Dillman, D. A. (2000). *Mail and Internet Surveys: The Tailored Design Method* (2 ed.). New York: Wiley.

Drage, J., & Hovaguimian, C. (2004). *Collective Action Clauses (Cacs): An Analysis of Provisions Included in Recent Sovereign Bond Issues*: International Finance Division, Bank of England.

Duffie, D., Schroder, M., & Skiadas, C. (1996). Recursive Valuation of Defaultable Securities and the Timing of Resolution of Uncertainty. *The Annals of Applied Probability*, Vol. 6(4), pp. 1075-1090.

Duffie, D., & Singleton, K. J. (1999). Modeling Term Structures of Defaultable Bonds. *Review of Financial Studies*, Working Paper.

Dumitrescu, A. (2006). Valuation of Defaultable Bonds and Debt Restructuring. *Journal of Corporate Finance*, Vol. 13, pp. 94-111.

Dwyer, D. W., & Stein, R. M. (2003). *Inferring the Default Rate in a Population* (No. 021216): Moody's KMV Company.

Dybvig, P. H., & Zender, J. F. (1991). Capital Structure and Dividend Irrelevance with Asymmetric Information. *The Review of Financial Studies*, Vol. 4(1), pp. 201-219.

Education Resources Information Centre. (1997). Designing Structured Interviews for Educational Research, *Practical Assessment, Research & Evaluation* (Vol. 5).

Einhorn, H. J., & Hogarth, R. M. (1981). Behavioral Decision Theory: Processes of Judgment and Choice. *Journal of Accounting Research*, 19(1), 1-31.

Eisenhardt, K. M. (1989). Agency Theory: An Assessment and Review. *The Academy of Management Review*, 14(1), 57-74.

Elfakhani, S. (1995). An Empirical Examination of the Information Content of Balance Sheet and Dividend Announcements: A Signaling Approach. *Journal Of Financial And Strategic Decisions*, Vol. 8(2), pp. 65-76.

Elizalde, A. (2003). Credit Risk Models li: Structural Models: CEMFI and Universidad Pública de Navarra.

Elloumi, F., & Gueyie, J.-P. (2001). Financial Distress and Corporate Governance: An Empirical Analysis. *Corporate Governance, Vol. 1*(1), pp. 15-23.

Eom, Y. H., Helwege, J., & Huang, J.-z. (2003). Structural Models of Corporate Bond Pricing: An Empirical Analysis. *Review of Financial Studies, Working Paper*.

Eppler, M. J., & Mengis, J. (2003). *A Framework for Information Overload Research in Organizations: Insights from Organization Science, Accounting, Marketing, Mis, and Related Disciplines*. Unpublished #1/2003 ICA Working Paper, University of Lugano, Lugano.

Erickson, S. M., & Trevino, R. (1994). A Pecking Order Approach to Leasing: The Airline Industry Case. *Journal Of Financial And Strategic Decisions, Vol. 7*(3), pp. 71-81.

Esperanca, J. P., Gama, A. P. M., & Gulamhussen, M. A. (2003). Corporate Debt Policy of Small Firms: An Empirical (Re) Examination. *Journal of Small Business and Enterprise Development, Vol. 10*(1), pp. 62-80.

Fabozzi, F. J. (1989). *Bond Markets, Analysis and Strategies*: Prentice-Hall.

Fama, E. F. (1998). Market Efficiency, Long-Term Returns, and Behavioral Finance. *Journal of Financial Economics, Vol. 49*, pp. 283-306.

Fama, E. F., & French, K. R. (2005). Financing Decisions: Who Issues Stock? *Journal of Financial Economics, Vol. 76*, pp. 549-582.

Fan, G.-Z., Sing, T. F., Ong, S. E., & Sirmans, C. F. (2004). Governance and Optimal Financing for Asset-Backed Securitization. *Journal of Property Investment and Finance*, Vol. 22(5), pp. 414-434.

Fan, H., & Sundaresan, S. M. (2000). Debt Valuation, Renegotiation, and Optimal Dividend Policy. *The Review of Financial Studies*, 13(4), pp. 1057-1099.

Fan, J. P. H., Titman, S., & Twite, G. (2003). An International Comparison of Capital Structure and Debt Maturity Choices.

Fatemi, A., & Fooladi, I. (2006). Credit Risk Management: A Survey of Practices. *Managerial Finance*, Vol. 32(3), pp. 227-233.

Faulkender, M., & Petersen, M. A. (2003). Does the Source of Capital Affect the Capital Structure? : National Bureau of Economic Research.

Feldman, D. C., & Arnold, H. J. (1978). Position Choice: Comparing the Importance of Job and Organizational Factors. *Journal Of Applied Psychology*, 63, 706-710.

Fernandes, E., & Capobianco, H. M. P. (2000). Airline Capital Structure: One Parameter in the Search of Efficiency, *Alternative Perspectives on Finance* 5. University of Dundee

Fernandez, P. (2002). Optimal Capital Structure: Problems with the Harvard and Damodaran Approaches: IESE.

Filbeck, G., Gorman, R. F., & Preece, D. C. (1996). Behavioral Aspects of the Intra-Industry Capital Structure Decision. *Journal Of Financial And Strategic Decisions*, Vol. 9(2), pp. 55-67.

Forlani, D. (2002). Risk and Rationality: The Influence of Decision Domain and Perceived Outcome on Managers' High Risk Decisions. *Journal of Behavioral Decision Making*, 15(2), 125-140.

Forte, S. (2003). *Capital Structure: Optimal Leverage and Maturity Choice in a Dynamic Model*. Universidad Carlos III de Madrid, Madrid.

Frajay, G. D., & Stones, C. (2003). Risk and Capital Structure in the Regulated Firm: University of York.

François, P. (2003). Measuring Prepayment Risk Exposure on Defaultable Callable Debt: HEC Montreal.

François, P., & Morellec, E. (2002). Capital Structure and Asset Prices: Some Effects of Bankruptcy Procedures. *Journal of Business, Working Paper*.

Frank, M. Z., & Goyal, V. K. (2003). Capital Structure Decisions: Hong Kong University of Science and Technology.

Fridson, M. (2005). Default Rate by Underwriter. *Leverage World*.

Friedlob, G. T., & Schleifer, L. L. F. (2002). *Essentials of Financial Analysis*: Wiley.

Fruhworth, M., & Sogner, L. (2001). The Jarrow/Turnbull Default Risk Model: Evidence from the German Market: Vienna University of Economics and Business Administration.

Fudenberg, D., & Tirole, J. (1986). Noncooperative Game Theory for Industrial Organization: An Introduction and Overview. In *Economics Working Papers 8613*:

University of California at Berkeley.

Gable, G. G. (1994). Integrating Case Study and Survey Research Methods: An Example in Information Systems. *European Journal of Information Systems*, Vol. 3(2), pp. 112-126.

Gaeta, G., Alibhai, S., & Hingorani, J. (2003). *Frontiers in Credit Risk: Concepts and Techniques for Applied Credit Risk Measurement* (1 ed.): Wiley Finance.

Galai, D., Raviv, A., & Wiener, Z. (2003). Liquidation Triggers and the Valuation of Equity and Debt: Jerusalem School of Business Administration.

Ganzach, Y. (1997). Misleading Interaction and Curvilinear Terms. *Psychological Methods*, Vol. 2(3), pp. 235-247.

Ganzach, Y. (1997). Theory and Configurality in Clinical Judgments of Expert and Novice Psychologists. *Journal of Applied Psychology*, Vol. 82(6), pp. 954-960.

Garcia-Retamero, R., Hoffrage, U., Dieckmann, A., & Ramos, M. (2007). Compound Cue Processing within the Fast and Frugal Heuristics Approach in Non-Linearly Separable Environments. *Learning and Motivation*, 38, 16-34.

Garleanu, N., & Zwiebel, J. (2003). Design and Renegotiation of Debt Covenants: University of Pennsylvania.

Gerlach, R., Bird, R., & Hall, A. (2007). *A Bayesian Approach to Variable Selection in Logistic Regression with Application to Predicting Earnings Direction from Accounting Information*. University of Technology, Sydney.

Gersbach, H. (2002). The Optimal Capital Structure of an Economy: University of Heidelberg.

Geske, R. (1977). The Valuation of Corporate Liabilities as Compound Options. *Journal of Financial and Quantitative Analysis*, 12(4), 541-552.

Giesecke, K. (2004). Credit Risk Modeling and Valuation: An Introduction. In D. Shimko (Ed.), *Credit Risk: Models and Management* (Vol. 2). London: Riskbooks.

Giesecke, K., & Goldberg, L. R. (2004). Forecasting Default in the Face of Uncertainty. *The Journal of Derivatives* (Fall 2004), pp. 11-25.

Givoly, D., Hayn, C., Ofer, A. R., & Sarig, O. (1992). Taxes and Capital Structure: Evidence from Firms Response to the Tax Reform Act of 1986. *The Review of Financial Studies*, Vol. 5(2), pp. 331-355.

Glasserman, P. (2003). Tail Approximations for Portfolio Credit Risk: Columbia Business School.

Goldstein, R., Ju, N., & Leland, H. (1999). An Ebit-Based Model of Dynamic Capital Structure. *Journal of Business* (Forthcoming).

Gopalakrishnan, V. (1994). Accounting Choice Decisions and Unlevered Firms: Further Evidence on Debt/Equity Hypothesis. *Journal Of Financial And Strategic Decisions*, Vol. 7(3), pp. 33-47.

Goswami, G., Noe, T., & Rebello, M. (1995). Debt Financing under Asymmetric Information. *The Journal of Finance*, Vol. 1(2), pp. 633-659.

Gulati, D., & Zantout, Z. (1997). Inflation, Capital Structure, and Immunization of

the Firm's Growth Potential. *Journal Of Financial And Strategic Decisions*, Vol. 10(1), pp. 77-90.

Haldane, A. G., Penalver, A., Saporta, V., & Shin, H. S. (2004). Optimal Collective Action Clause Thresholds, *Presented at Dollars, Debt, and Deficits 60 Years After Bretton Woods*. Madrid, Spain: The Banco de España and the International Monetary Fund.

Hall, S., & Martin, D. (2000). Proceedings of the American Society of Business and Behavioral Sciences Track Selection of Deans & Accreditation, Interdisciplinary, and Legal Studies. *Proceedings of the American Society of Business and Behavioral Sciences*, 7(8).

Harris, M., & Raviv, A. (1989). The Design of Securities. *Journal of Financial Economics*, Vol. 24, pp. 255-287.

Hatfield, G. B., Cheng, L. T. W., & Davidson, W. N., III. (1994). The Determination of Optimal Capital Structure: The Effect of Firm and Industry Debt Ratios on Market Value. *Journal Of Financial And Strategic Decisions*, Vol. 7(3).

Haugen, R. A., & Senbet, L. W. (1986). The Role of Options in the Resolution of Agency Problems: A Reply. *The Journal of Finance*, Vol. 41(5), pp. 1171-1173.

Haugen, R. A., & Senbet, L. W. (1988). Bankruptcy and Agency Costs: Their Significance to the Theory of Optimal Capital Structure. *The Journal of Financial and Quantitative Analysis*, Vol. 23(1), pp. 27-38.

Healy, P. M., & Palepu, K. G. (2000). A Review of the Empirical Disclosure Literature. *Journal of Accounting and Economics*, Vol. 31(1-3), pp. 405-440.

Henriques, R., & Goulden, J. (2006). A Framework for Valuating Financial Hybrids, European Credit Research. *European Credit Research*, 18-22.

Hicks, J. R., & Wheller, D. (1990). Money & Capital Markets in Australia. *Harcourt Brace Jovanovich*, 36-38.

Hitt, M. A., & Barr, S. H. (1989). Managerial Selection Decision Models: Examination of Configural Cue Processing. *Journal of Applied Psychology*, 74(1), 53-61., 74(1), 53-61.

Ho, S. S. M. (2003). *Corporate Governance in China*. Hong Kong Baptist University, Hong Kong.

Hol, S., Westgaard, S., & Wijst, N. v. d. (2002). Capital Structure and the Prediction of Bankruptcy: Norwegian University of Science and Technology.

Home Affairs Bureau. (2002). *Public Consultation on Gambling Review : Consultation Report* (Consultation Report). Hong Kong: Home Affairs Bureau.

Hooper, C., & Trotman, K. T. (1996). Configural Information Processing in Auditing: Further Evidence. *Accounting and Business Research*, Vol. 26(2), pp. 125-136.

Höpner, M., & Jackson, G. (2001). An Emerging Market for Corporate Control? The Mannesmann Takeover and German Corporate Governance: Max-Planck-Institut für Gesellschaftsforschung.

Hotchkiss, E. S., John, K., Mooradian, R. M., & Thorburn, K. S. (2008). Bankruptcy and the Resolution of Financial Distress. *Handbook of Corporate Finance: Empirical Corporate Finance*, 2(Chapter 14).

Hui, C. H., Lo, C. F., & Tsang, S. W. (2003). Pricing Corporate Bonds with Risk Adjustable Default Barrier. *Journal of Risk*, Vol. 5(3), pp. 17-37.

Hunt, B., & Terry, C. (1993). Financial Instruments and Markets. *Nelson Australia*, 140-146.

Hunter, J. E., Schmidt, F. L., & Coggin, T. D. (1988). Problems and Pitfalls in Using Capital Budgeting and Financial Accounting Techniques in Assessing the Utility of Personnel Programs. *Journal of Applied Psychology*, 73, 522-528.

Hutchinson, P. (2003). How Much Does Growth Determine Sme's Capital Structure?, *16th Annual Conference of Small Enterprise Association of Australia and New Zealand*. Ballarat.

Iraca, K. (1998, June 1998). Syndicated Loans Offer Extra Returns with Less Risk. *Bloomberg*, pp. 69-74.

Jacob, J., Lys, T. Z., & Neale, M. A. (1999). Expertise in Forecasting Performance of Security Analysts. *Journal of Accounting and Economics*, Vol. 28, pp. 51-82.

Jacobs, D. F. (2000). Juvenile Gambling in North America: An Analysis of Long Term Trends and Future Prospects. *Journal of Gambling Studies*, Vol. 16(2/3), pp. 119-152.

Janes, T. D. (2003). *Accruals, Financial Distress, and Debt Covenants*. University of Michigan, Ann Arbor.

Jarrow, R., & Purnanandam, A. (2004). *The Valuation of a Firm's Investment Opportunities: A Reduced Form Credit Risk Perspective*. Cornell University, New York.

Jensen, M. C. (2004). Agency Costs of Overvalued Equity. *ECGI Working Paper*

Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, Vol. 3(4), pp. 305-360.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed Methods Research: A Research Paradigm Whose Time Has Come. *Educational Researcher*, 33(7), 14-26.

Johnson, R. B., & Turner, L. A. (2003). Data Collection Strategies in Mixed Methods Research. In A.Tashakkori & C. Teddlie (Eds.), *Handbook of Mixed Methods in Social and Behavioral Research* (pp. 297-319).

Johnston, W. J., Leach, M. P., & Liu, A. H. (1999). Theory Testing Using Case Studies in Business-to-Business Research. *Industrial Marketing Management*, 28(3), 201-213.

Joyce, E. J. (1976). Expert Judgment in Audit Program Planning. *Journal of Accounting Research*, Vol. 14, pp. 29-60.

Kahle, K. M., & Shastri, K. (2002). Firm Performance, Capital Structure and the Tax Benefits of Employee Stock Options: University of Pittsburgh.

Kahneman, D., & Tversky, A. (1972). Subjective Probability: A Judgment of Representativeness. *COGNITIVE PSYCHOLOGY*, Vol. 3(430-454).

Kaplan, S. N., & Stein, J. C. (1990). How Risky Is the Debt in Highly Leveraged Transactions? *Journal of Financial Economics*, Vol. 27, pp. 215-245.

Kapoor, A. K., & Pope, R. A. (1997). The Relationship between Corporate Debt Issuance and Changes in Systematic Risk. *Journal Of Financial And Strategic Decisions*, Vol. 10(3), pp. 13-22.

Keasler, T. R., Goff, D. C., & Perfect, S. B. (1997). Event Risk Bond Covenants and Shareholder Wealth: Evidence from Convertible Bonds. *Journal Of Financial And Strategic Decisions*, Vol. 10(3), pp. 37-41.

Kerlinger, F. N. (1986). *Foundations of Behavioral Research*. New York: Harcourt Brace Jovanovich College Publishers.

Khanna, N., & Tice, S. (2000). Strategic Responses of Incumbents to New Entry: The Effect of Ownership Structure, Capital Structure and Focus. *The Review of Financial Studies*, Vol. 13(3), pp. 749-779.

Kochhar, R. (1997). Strategic Assets, Capital Structure, and Firm Performance. *Journal Of Financial And Strategic Decisions*, Vol. 10(3).

Koussis, N., & Martzoukos, S. H. (2005). Managerial Control and Investment and Financing Options with Debt Financing Constraints, *Annual International Conference on Real Options*. Paris.

Koziol, C., & Lawrenz, J. (2008). Optimal Design of Rating Trigger Step-up Bonds: Agency Conflicts Versus Asymmetric Information.

Kuruppu, N., Laswad, F., & Oyelere, P. (2003). The Efficiency of Liquidation and Bankruptcy Prediction Models for Assessing Going Concern. *Managerial Auditing Journal*, Vol. 18(6/7), pp. 577-590.

Kwak, N., & Radler, B. (2002). A Comparison between Web and Mail Surveys: Response Pattern; Respondent Profile, and Data Quality. *Journal of Official Statistics*, 18(2), 257-273.

Landau, S., & Everitt, B. (2004). *A Handbook of Statistical Analyses Using Spss*: CRC/Chapman Hall.

Lane, P. R., & Milesi-Ferretti, G. M. (2006). *Capital Flows to Emerging Europe*: Trinity College Dublin.

Lau, C., & Cahill, B. (2012). *Asian Corporate Default Rate to Rise Modestly in 2012*.

Leary, C. O., Iselin, E., & Sharma, D. (2004). An Analysis of Consensus among Auditors During Internal Control Evaluations – Australian Evidence. *Accounting Research Journal*, 16(2), 174-191.

Lee, A. S. (1989). A Scientific Methodology for Mis Case Studies. *MIS Quarterly*, 13(1), 33-52.

Lee, K. S., Hartl, R. J., & Rhim, J. C. (1999). An Analysis of Variation in Capital Asset Utilization. *Journal Of Financial And Strategic Decisions*, Vol. 12(1), pp. 23-31.

Leippold, M., Vanini, P., & Ebnoether, S. (2003). Optimal Credit Limit Management under Different Information Regimes: National Centre of Competence in Research: Financial Valuation and Risk Management, Working Paper 72.

Leland, H. E. (1994). Corporate Debt Value, Bond Covenants, and Optimal Capital Structure. *The Journal of Finance*, Vol. 49(4), pp. 1213-1252.

Leland, H. E., & Toft, K. B. (1996). Optimal Capital Structure, Endogenous Bankruptcy, and the Term Structure of Credit Spreads. *Journal of Finance*, 51,

Levin, B. (1999). Objecthood: An Event Structure Perspective. *CLS 35: The Main Session*, 1.

Levy, K. J. (1979). Pairwise Comparisons Associated with the K Independent Sample Median Test. *The American Statistician*, Vol. 33(3), pp. 138-139.

Li, K., Yue, H., & Zhao, L. (2006). Ownership, Institutions, and Capital Structure: Evidence from Chinese Firms: University of British Columbia.

Li, Y., & Peng, X. (2002). The Money Market in China: Theory and Practice. *China & World Economy*, 3, 3-10.

Libby, R. (1981). *Accounting and Human Information Processing: Theory and Applications* Prentice-Hall.

LIN, Z. J., PENG, M. W., YANG, H., & SUN, S. L. (2009). How Do Networks and Learning Drive M&As? An Institutional Comparison between China and the United States. *Strategic Management Journal*, 30, 1113-1132.

Litman, T. (2004). Distance-Based Vehicle Insurance Feasibility, Costs and Benefits Comprehensive Technical Report. *Victoria Policy Institute, Transport Policy*, Vol. 12(2), pp. 121-129.

Lo, C. F., & Hui, C. H. (1999). Valuation of Defaultable Bonds Using Signaling Process - an Extension: Working Paper, Chinese University of Hong Kong.

Lough, S., & Kaweck, D. (1996). *Understanding Bond Document, Continuing Professional Education Exempt Organizations Technical Instruction Program*:

Continuing Professional Education Exempt Organizations Technical Instruction Program.

Luciano, E., & Vigna, E. (2005). Continuing Professional Education Exempt Organizations Technical Instruction Program: International Centre for Economic Research.

Lussier, D. A., & Olshavsky, R. W. (1979). Task Complexity and Contingent Processing in Brand Choice. *Journal of Consumer Research*, 6(2), 154-165.

Maines, L. A. (1995). Judgment and Decision Making Research in Financial Accounting: A Review and Analysis. In A. H. Ashton (Ed.), *Judgment and Decision Making Research in Accounting and Auditing* (pp. 76-101): Cambridge University Press.

Marais, L., Schipper, K., & Smith, A. (1989). Wealth Effects for Going Private for Senior Securities. *Journal of Financial Economics*, Vol. 23.

Marshall, D. C., & Baker, R. G. V. (2002). The Evolving Market Structures of Gambling: Case Studies Modelling the Socioeconomic Assignment of Gaming Machines in Melbourne and Sydney, Australia. *Journal of Gambling Studies*, Vol. 18(3), pp. 273-291.

Mateus, C., & Terra, P. R. S. (2005). Capital Structure and Debt Maturity: Evidence from Emerging Markets: University of Sinos.

Mauchly, J. W. (1940). Significance Test for Sphericity of a Normal N-Variate Distribution. *The Annals of Mathematical Statistics*, 11, 204-209.

Mayer, C., & Sussman, O. (2003). A New Test of Capital Structure: Saïd Business School, University of Oxford.

McDaniel, M. W. (1988). Bondholders and Stockholders. *The Journal of Corporation Law*, Winter.

McGhee, W., Shields, M. D., & Birnberg, J. G. (1978). The Effects of Personality on a Subject's Information Processing. *The Accounting Review*, Vol. 53(3), pp. 681-697.

McGoun, E. G., & Skubic-Simoyski, T. (2005). Communicating Finance: International Review of Financial Analysts, Working Paper.

McGrath, D., & O'Brien, M. (2006). Litigation of Material Adverse Change Clauses in Derivatives Contracts, *Blake, Cassels & Graydon LLP*.

McGrath, J. E. (2004). Methodology Matters: Doing Research in the Behavioral and Social Sciences. pp. 152-169.

McMillen, J. (2003). *Review of Issues Related to Commonwealth Interactive Gambling Regulation*: ANU Centre for Gambling Research.

McNair, D., Milliner, R., & Mazzochi, R. (2002). *Material Adverse Change Clauses*: Mallesons Stephen Jacques.

Mear, R., & Firth, M. (1987). Cue Usage and Self-Insight of Financial Analysts. *The Accounting Review*, Vol. 62(1), pp. 176-182.

Merton, R. C. (1974). On the Pricing of Corporate Debt: The Risk Structure of Interest Rates. *The Journal of Finance*, 29(2), 449-470.

Miao, J., & Morellec, E. (2003). Capital Structure, Credit Risk, and Macroeconomic Conditions: University of Rochester.

Mikhail, M. B., Walther, B. R., & Willis, R. H. (1997). Do Security Analysts Improve Their Performance with Experience? *Journal of Accounting Research*, Vol. 35, pp. 131-157.

Mikhail, M. B., Walther, B. R., & Willis, R. H. (2003). The Effect of Experience on Security Analyst Underreaction. *Journal of Accounting and Economics*, Vol. 35, pp. 101-116.

Milne, M. J., & Chan, C. C. C. (1999). Narrative Corporate Social Disclosures: How Much of a Difference Do They Make to Investment Decision-Making? *British Accounting Review*, 31(4), 439-457.

Miltersen, K. R., & Persson, S.-A. (2001). Pricing Rate of Return Guarantees in a Heath-Jarrow-Morton Framework: Working Paper.

Mitchell, K. (1991). The Call, Sinking Fund, and Term-to-Maturity Features of Corporate Bonds: An Empirical Investigation. *Journal of Financial and Quantitative Analysis*, 26(2), 201-222.

Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, Vol. 48(3), pp. 261-297.

Modigliani, F., & Miller, M. H. (1963). Corporate Income Taxes and the Cost of Capital: A Correction. *The American Economic Review*, Vol. 53(3), pp. 433-443.

Moody's Global Credit Research. (2007). *Moody's Global Indenture Covenant - Research Assessment Framework*: Moody's Investor Service.

Mooney, C. W., Jr. (2004). A Normative Theory of Bankruptcy Law: Bankruptcy as (Is) Civil Procedure. *Wash & Lee L. Review*, No. 931.

Morck, R. (2003). Why Some Double Taxation Might Make Sense: The Special Case of Inter-Corporate Dividends: Working Paper 9651, National Bureau of Economic Research.

Morgan, J. (2005). *Aztar Corp.: Reported Strong Third-Quarter Results Driven by Continued Momentum in Atlantic City*. New York: JP Morgan.

Morgan, J. (2005). *Boyd Gaming Corporation: Reported Solid Second-Quarter Results*. New York: JP Morgan.

Morgan, J. (2005). *Boyd Gaming Corporation: Reported Strong Third-Quarter Results Despite the Impact of Hurricanes*. New York: JP Morgan.

Morgan, J. (2005). *Harrah's Entertainment Inc.: Despite Modest Second-Quarter Results, Credit Story Remains Intact*. New York: JP Morgan.

Morgan, J. (2005). *Las Vegas Sands Corp.: Solid Second-Quarter Results; Macau Momentum Offset by Modest Las Vegas Performance*. New York: JP Morgan.

Morgan, J. (2005). *Malaysia Gaming Sector: 3q05 Should Yield Mixed Results. Be Selective in Stocks*: JP Morgan.

Morgan, J. (2005). *Mgm Mirage: Solid Third-Quarter Results; Credit Story Remains Intact Despite Decelerating Growth Concerns*. New York: JP Morgan.

Morgan, J. (2005). *Pinnacle Entertainment Inc.: Reported Impressive Second-Quarter Results; Driven by Strength at L'auberge Du Lac Casine*: JP Morgan.

Morgan, J. (2005). *Station Casinos Inc.: Reported Strong Third-Quarter Results; Raised 2005 Guidance*. New York: JP Morgan.

Morgan, J. (2005). *Wynn Resorts Inc.: Second-Quarter Results Exceed Expectations, Driven by Higher-Than-Anticipated Margins*. New York: JP Morgan.

Morris, J. (1992). Factors Affecting the Maturity Structure of Corporate Debt, *College of Business and Administration*. Denver: University of Colorado.

Moss, D. (2004). Cross-Market Valuation. *www.risk.net, April 2004*, pp. 79-83.

Mueller, P. (2005). Exploring the Knowledge Filter: How New Firm Formation and University-Industry Relations Drive Economic Growth, *ERSA Conference Papers* (pp.38-48).

Myers, S. C. (1977). Determinants of Corporate Borrowing. *Journal of Financial Economics*, 5, 147-175.

Myers, S. C., & Majluf, N. S. (1984). Corporate Financing and Investment Decisions When Firms Have Information the Investors Do Not Have: National Bureau of Economic Research.

Nachman, D. C., & Noe, T. H. (1994). Optimal Design of Securities under Asymmetric Information. *The Review of Financial Studies*, Vol. 7(1), pp. 1-44.

Naqvi, H. (2003). The Valuation of Corporate Debt with Default Risk: Financial Markets Group, London School of Economics.

Nash, R. C., Netter, J. M., & Poulsen, A. B. (2001). Determinants of Contractual Relations between Shareholders and Bondholders: Investment Opportunities and Restrictive Covenants. *Journal of Corporate Finance*, Vol. 9, pp. 201-232.

Nguyen, H. T. (2002). *Project Finance Risk Pricing Decision: Australian Evidence*. University of Western Sydney, Sydney.

Nguyen, P. (2006). *Ownership Concentration, Group Affiliation, and the Performance of Japanese Firms*. University of New South Wales, Sydney.

Nisbett, R. E., & Wilson, T. D. (1977). Telling More Than We Can Know: Verbal Reports on Mental Processes. *Psychological Review*, Vol. 84(3), pp. 231-259.

Norton, E., & Pettengill, G. N. (1998). Event Risk Covenant Rating Announcements and Stock Returns. *Journal Of Financial And Strategic Decisions*, Vol. 11(2).

Noyce, J.-M., & Dill, A. (2011). *Asian High-Yield Bond Covenants Offer Superior Protection*: Moody's Global Credit Research.

Nyerges, T., Jankowski, P., & Drew, C. (2002). Data-Gathering Strategies for Social-Behavioural Research About Participatory Geographical Information System Use. *International Journal of Geographical Information Science*, 16(1), pp. 1-22.

O'Leary, C., Iselin, E., & Sharma, D. (2004). An Analysis of Consensus among Auditors During Internal Control Evaluations - Australian Evidence. *Accounting Research Journal*, 17(2), 174-191.

Ong, S.-E., & Maxam, C. L. (1997). A Heterogeneous Panel Cointegration-Error

Correction Approach to Modelling Commercial Mortgage-Backed Security Prices. *Journal of Property Finance*, 8(4), pp. 317-335.

Ooi, J. (1999). The Determinants of Capital Structure: Evidence on Uk Property Companies. *Journal of Property Investment and Finance*, 17(5), pp. 464-480.

Ooi, J. T. L. (2000). Managerial Opportunism and the Capital Structure Decisions of Property Companies. *Journal of Property Investment and Finance*, 18(3), pp. 316-331.

Padro´n, Y. G. a., Apolinario, R. M. a. C. c., Santana, O. M., Martel, M. a. C. n. V., & Sales, L. J. n. (2005). Determinant Factors of Leverage: An Empirical Analysis of Spanish Corporations. *Journal of Risk Finance*, 6(1), pp. 60-68.

Paglia, J. K., & Mullineaux, D. J. (2006). An Empirical Exploration of Financial Covenants in Large Bank Loans. *Bank and Bank Systems*, Vol. 1(2).

Pawlukiewicz, J. E., Cagle, J. A. B., & Webb, S. E. (2000). The Temporal Behavior of Risk and Required Return Following Announcements of Leverage-Changing Security Transactions. *Journal of Financial and Strategic Decisions*, Vol. 13(1), pp. 45-56.

Payne, J. W. (1976). Task Complexity and Contingent Processing in Decision Making: An Information Search and Protocol Analysis. *Organizational Behavior and Human Performance*, 16, 366-387.

Payne, J. W. (1982). Contingent Decision Behavior. *Psychological Bulletin*, 92(2), 382-402.

Pesando, J., Smart, M., & Wilson, T. A. (1997). Tax-Exempts and Corporate Capital Structure: An Analysis of Efficiency and Revenue Implications: Technical Committee on Business Taxation.

Phillips, M. D., & Volker, J. X. (2000). Capital Structure Theory: Implication of the Entrepreneurial Firm. In *Proceedings of the American Society of Business and Behavioral Sciences Track Section of Deans & Accreditation, Interdisciplinary, and Legal Studies* (Vol. 7, pp. 31-37). Las Vegas, Nevada.

Pike, R., & Neale, B. (2006). *Corporate Finance and Investment: Decisions & Strategies* (5 ed.): Financial Times Prentice Hall.

Plesko, G. A. (2001). The Role of Short-Term Debt in Capital Structure. *Proceedings of the Ninety-Third Annual Conference, Working Paper*.

Poulin, C. (2002). An Assessment of the Validity and Reliability of the Sogs-Ra. *Journal of Gambling Studies*, Vol. 18(47-58).

Prasad, D., Bruton, G. D., & Merikas, A. G. (1997). Long-Run Strategic Capital Structure. *Journal Of Financial And Strategic Decisions*, 10(1), pp. 47-58.

Productivity Commission. (2003). *Social Capital: Reviewing the Concept and Its Policy Implications* (Research Paper). Canberra.

Purnanandam, A. (2007). Financial Distress and Corporate Risk Management: Theory & Evidence. *Vol. 87(3)*, pp. 706-739.

Qian, Y., Roland, G., & Xu, C. (2003). Coordinating Tasks in M-Form and U-Form Organizations: London School of Economics and Political Science, Research Paper TE458.

Qing, Y., & Burcin, Y. B. (2008). *The Impact of the Split-Share Structure Reform on Compensation Incentive Based on Firm Performance in China*. School of Economic, Shanghai.

Rabiee, F. (2004). Focus-Group Interview and Data Analysis. *Proceedings of the Nutrition Society*, 63, 655–660.

Repullo, R. (2002). Capital Requirements, Market Power, and Risk-Taking in Banking. *Journal Of Financial And Strategic Decisions*, Vol. 13(2), pp. 83-96.

Robak, P. J., & Kish, R. J. (2000). Revisiting the Determinants of the Corporate Debt Call Option: New Evidence 1987-1996. *Journal Of Financial And Strategic Decisions*, Vol. 13(2), pp. 83-96.

Ross, Westerfield, Jordan, & Roberts. (2005). *Fundamentals of Corporate Finance 5th Edition* (5th ed.): McGraw-Hill.

Sands, J. S. (1996). *Auditor Switching - a Two-Stage Decision Process: An Empirical Study of Australian Companies*. Griffith University.

Sarkar, J., & Sarkar, S. (2005). Debt and Corporate Governance in Emerging Economies: Evidence from India: Indira Gandhi Institute of Development Research.

Savich, R. S. (1977). The Use of Accounting Information in Decision Making. *The Accounting Review*, 52(3), 642-652.

Schonlau, M. (2002). *Conducting Research Surveys Via E-Mail and the Web*: RAND Corporation.

Schwarcz, S. L., & Sergi, G. (2007). *Bond Defaults and the Dilemma of the Indenture Trustee*: Duke Law School.

Schwartz, A. (2005). A Normative Theory of Business Bankruptcy. *Centre for Law, Economics and Public Policy, Research Paper No. 305*.

Senbet, L. W. (1993). Comment: Protecting Stakeholder Interests in Bankruptcy Reorganization. *The University of Toronto Law Journal*, Vol. 43(3), pp. 717-720.

Sharma, D. S. (2001). The Role of Cash Flow Information in Predicting Corporate Failure: The State of the Literature. *Managerial Finance*, Vol. 27(4), pp. 3-28.

Sheth, J. N. (1977). *Multivariate Methods for Market and Survey Research*. Chicago: American Marketing Association.

Silva, S., & Azevedo-Pereira, J. (2006). The Pricing of Finite Maturity Corporate Coupon Bonds with Rating-Based Covenants.

Skora, R. K. (1998). *Rational Modeling of Credit Risk and Credit Derivatives*: Skora & Company, Inc.

Slovic, P. (1966). Cue-Consistency and Cue-Utilization in Judgment. *The American Journal of Psychology*, 79(3), pp. 427-434.

Slovic, P. (1969). Analyzing the Expert Judge: A Descriptive Study of a Stockbroker's Decision Process. *Journal of Applied Psychology*, Vol. 53(4), pp. 255-263.

Slovic, P. (1972). Psychological Study of Human Judgment: Implications for Investment Decision Making. *The Journal of Finance*, Vol. 27(4), pp. 779-799.

Slovic, P., Fischhoff, B., & Lichtenstein, S. (1977). Behavioral Decision Theory *Annual Review Psychology*, Vol. 28, pp. 1-39.

Slovic, P., Fleissner, D., & Bauman, W. S. (1972). Analyzing the Use of Information in Investment Decision Making: A Methodological Proposal. *The Journal of Business*, 45, 283-301.

Slovic, P., & Lichtenstein, S. (1971). Comparison of Bayesian and Regression Approaches to the Study of Information Processing in Judgment. *Organizational Behavior and Human Performance*, 6, 649-744.

Slovic, P., & MacPhillamy, D. (1974). Dimensional Commensurability and Cue Utilization in Comparative Judgment. *Organizational Behavior and Human Performance*, 11, 179-194.

Smith, C. W., Jr., & Warner, J. B. (1979). Bankruptcy, Secured Debt, and Optimal Capital Structure: Comment. *The Journal of Finance*, Vol. 34(1), pp. 247-251.

Smith, C. W., Jr., & Warner, J. B. (1979). On Financial Contracting: An Analysis of Bond Covenants. *Journal of Financial Economics*, 7, pp. 117-161.

Snowball, D. (1986). Accounting Laboratory Experiments on Human Judgment: Some Characteristics and Influences. *Accounting, Organizations & Society*, 11(1), 47-69.

Solomon, I., & Shields, M. D. (1995). *Judgment and Decision Research in Auditing*. New York: Cambridge University Press.

Statman, M. (2005). Normal Investors, Then and Now. *Financial Analysts Journal Reflections* (March/April 2005), pp. 31-37.

Stigler, G. J. (1961). The Economics of Information. *The Journal of Political Economy*, Vol. 69(3), pp. 213-225.

Stiglitz, J. E. (1987). The Causes and Consequences of the Dependence of Quality on Price. *Journal of Economic Literature*, 25(1), pp. 1-48.

Strebulaev, I. A. (2003). Do Tests of Capital Structure Theory Mean What They Say? *The Journal of Finance*, Vol. 62(4), pp. 1747-1787.

Stulz, R. M. (2000). Does Financial Structure Matter for Economic Growth? A Corporate Finance Perspective: World Bank Conference Paper.

Swanson, J., Marshall, P., Lokey, H., Norley, L., & LLP, K. E. I. (2008). *A Practitioner's Guide to Corporate Restructuring*. City & Financial Publishing (1 ed.).

Swanson, J., Marshall, P., & Norley, L. (2008). *A Practitioner's Guide to Corporate Restructuring* (1st ed.): City & Financial Publishing.

Takahashi, A., Kobayashi, T., & Nakagawa, N. (2001). Pricing Convertible Bonds with Default Risk: A Duffie-Singleton Approach. *Journal of Fixed Income, Working Paper*.

Teixeira, J. C. A. (2005). *An Empirical Analysis of Structural Models of Corporate Debt Pricing*. Lancaster University Management School, Lancaster.

The Hong Kong Jockey Club. (2003). *Hkjc 2002/03 Annual Report* (Annual Report). Hong Kong.

The Small Business and Technology Development Centre. (2004). *Capital Opportunities for Small Businesses*. North Carolina: The University of North Carolina.

Thomas A. Ryan, J., & Joiner, B. L. (1976). *Normal Probability Plots and Tests for Normality*. The Pennsylvania State University.

Thornton, J. (2000). *Constraint Weighting Local Search for Constraint Satisfaction*. Griffith University.

Titman, S., & Tsyplakov, S. (2005). A Dynamic Model of Optimal Capital Structure. *Vol. 11*, 3(401-451).

Titman, S., & Wessels, R. (1988). The Determinants of Capital Structure Choice. *Journal of Finance*, 43(1), 1-19.

Torabkhani, A. (2008). *A Monte Carlo Factorial Design Approach for Assessing Environmentally Responsible Manufacturing Cost-Benefit Tradeoffs*. Northeastern University.

Tversky, A., & Kahneman, D. (1973). Availability: A Heuristic for Judging Frequency and Probability. *Cognitive Psychology*, 5(2), 677-695.

Tversky, A., & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases. *Science, New Series*, 185(4157), 1124-1131.

Vu, J. D. (1986). An Empirical Investigation of Calls of Non-Convertible Bonds. *Journal of Financial Economics*, Vol. 16, pp. 235-265.

Walker, D. M. (2003). Methodological Issues in the Social Cost of Gambling. *Journal of Gambling Studies*, Vol. 19(2), pp. 149-183.

Wei, C. (2005). Covenant Protection, Credit Spread Dynamics and Managerial Incentives: New York University.

Wei, C. (2005). *Covenant Protection, Credit Spread Dynamics and Managerial Incentives*. New York University.

Weinraub, H. J., & Visscher, S. (1998). Industry Practice Relating to Aggressive Conservative Working Capital Policies. *Journal Of Financial And Strategic Decisions*, 11(2), pp. 11-18.

Wiggins, J. B. (1990). The Relation between Risk and Optimal Debt Maturity and the Value of Leverage. *The Journal of Finance and Quantitative Analysis*, Vol. 25(3), pp. 377-386.

Wood, D., & Ross, D. G. (2006). Environmental Social Controls and Capital Investments: Australia Evidence. *Accounting & Finance*, 46(4), 677-695.

Wray, L. R. (2004). *When Are Interest Rates Exogenous?* Paper presented at the Complexity, endogenous money, and exogenous interest rates, Stellenbosch, South Africa.

Wright, W. F. (1977). Self-Insight into the Cognitive Processing of Financial Information. *Accounting, Organizations and Society*, Vol. 2(4), pp. 323-331.

Wynne, H. J., & Shaffer, H. J. (2003). The Socioeconomic Impact of Gambling: The Whistler Symposium. *Journal of Gambling Studies*, Vol. 19(2), pp. 111-121.

Xiao, S. (2005). *Share Issue Privatization in China: Theory and Evidence--Change of Control Matters*. Vanderbilt University.

Xue, Y. (2007). *Capital Structure in China: Evidence from Chinese Listed Companies*. University of Surrey.

Yale University Library. (2000). Examples of Specific Contract Language: Force Majeure: Retrieved from <http://www.library.yale.edu/~license/forcegen.shtml>.

Yang, Q., & Yurtoglu, B. B. (2011). *The Impact of the Split-Share Structure Reform on Compensation Incentive Based on Firm Performance in China*. Paper presented at the 3rd International Conference on Corporate Governance in Emerging Markets Korea.

Yeung, Y.-m., Lee, J., & Kee, G. (2009). China's Special Economic Zones at 30. *Eurasian Geography and Economics*, 50(2), 222-240.

Yin, R. K. (1984). *Case Study Research: Design and Methods*: Sage Publications.

Yin, R. K. (2003). *Case Study Research: Design and Methods* (3 ed.): Sage Publications.

Yin, R. K. (2009). *Case Study Research: Design and Methods* (4 ed.): Sage Publications.

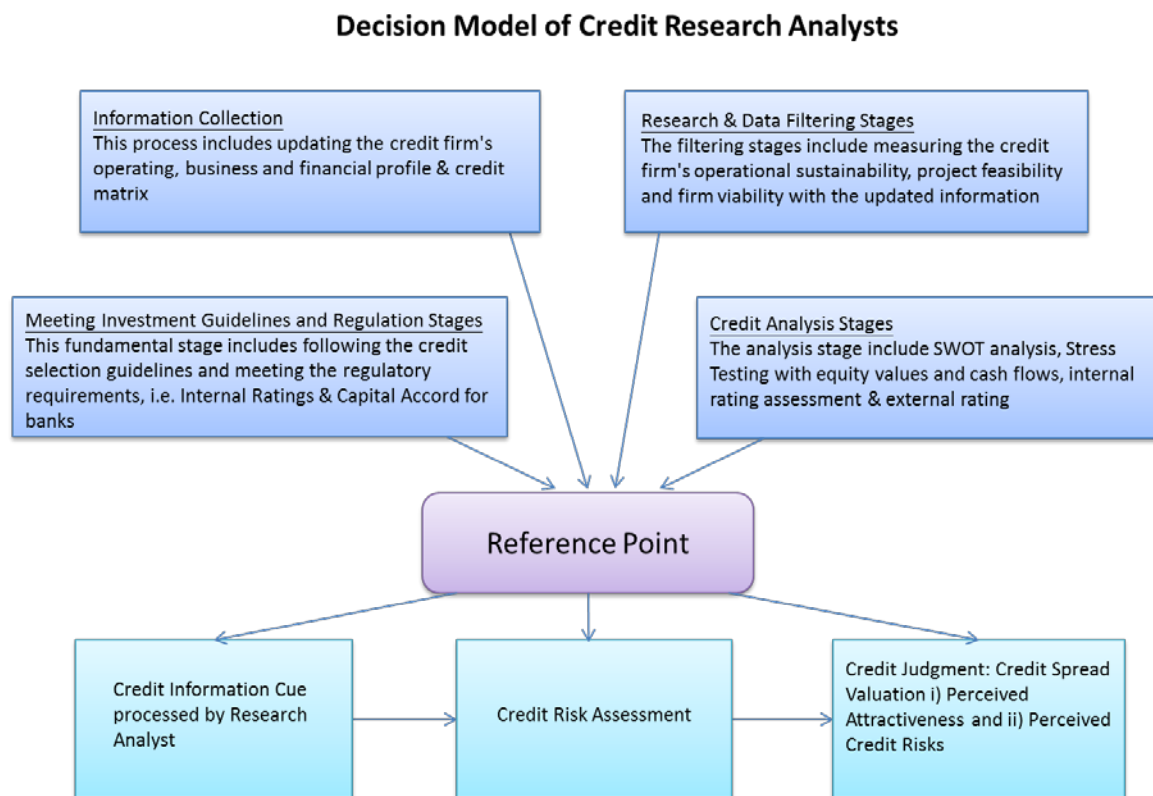
Zhu, W. X. 朱. (2002). *股权结构、公司治理与企业价值——兼评一股独大与股权多元化* [Shareholding Structure, Corporate Governance, and Enterprise Value - the Case of a Large Single Shareholder]. Unpublished Working Paper 200203, Tsinghua University, Beijing.

Appendices

1 The Analytical Framework Of Credit Analysts

Credit analysts normally go through a credit analysis process similar to that outlined in Chart 6. This is part of the credit analysis process, which is similar throughout the debt security investment process. The credit process involves groundwork research such as corporate site and plant visits, particularly when analyzing credits for industrial firms. The analyst assesses the operational issues of the credit firm. The process also involves conducting business assessment by interviewing management, managers, and directors of firms. The financial analyst uses SWOT analysis to analyze the firm's strength and weakness, and thereafter provide internal ratings to the credit firm for risk management.

Chart 6 – *Credit Analysis Procedures*



Furthermore, the analyst examines the technical factors of credit issues and looks into the credit's technical spread movements, thereafter determining if the market valuation matches their valuation expectation.

The analyst monitors the credits configurally and conducts on-going stress and sensitivity tests on the sustainability of the credit firm as an investment. This would play an important role in assessing the potential for bankruptcy and financial distress of the credits.

Debt covenants provide a wide degree of protection to debt investors, and analysts are able to identify and assess a firm's asset quality and its potential risk of event or default by studying imposed restrictions and financial information disclosures.

2 Valuation Methodologies: Structural And Reduced Form Approaches

Eom, Helwege and Huang (2003) empirically test five structural models by covering 182 debt issues from firms with simple capital structures issued between 1986 and 1997. Their research tries to identify whether credit spreads generated from the structural models could predict spreads that were equally accurate as those defined by the actual market spreads.

The results from Eom et al. (2003) show that structural models predict spreads as either too high or too low. The study reveals that default boundary, recovery rates, coupons and interest rates are different in each specification of the models examined. This indicates improvement on Merton (1974), whose model assumes:

1. Debt holders received the entire firm value in distress
2. The interest rates were constant, and
3. Zero coupon bonds were used for the models

Geske (1977) assumes that the coupons are paid from the proceeds of selling new equity by stockholders. Stockholders would not receive any principals if they didn't exercise this option, and debt holders would receive a proportion of the firm's asset value. Geske's model constitutes an improvement over other models and their examination based on zero coupon bonds.

Assumptions made by Eom et al. (2003) are based on underlying equity data from at least five years prior to the debt data observation. The type of debt security under study had to be simple and in most cases less than 5 types of debt were analyzed. The credit quality was mainly of investment grade. On average, the analyzed firms had a market value of \$6.5 billion. The debt instruments were non-callable, assessing debts that had repayments excluding any potential of buy back by the firm.

The set of parameters used by Eom et al. (2004) include firm values, capital structure, initial levels of debt and equity, payout, asset return volatility, speed of mean reverting, leverage process, and target leverage ratio. Notably, the default boundary was defined as the book value of total liabilities and considered breached if the debt value rose above the book values of equities. The implied debt volatility and recovery rates were also used as key input.

Eom et al. (2004) believed that the default boundary could flatten variation and make risky debts more risky, given that a high risk premium were being imposed on riskier credits. Also the zero coupon debts could accumulate coupons for debt holders on calculation at every future coupon receivable date. Also interest rate volatility was inferior as it was examined on lack of a good fit estimation.

Bhanot and Mello (2006) examine corporate debts that include covenant rating triggers and follow the optimum capital firm structure. They find that the covenant would ensure a pre-determined payment in the event of a debt rating downgrade. These pre-determined payouts included extra coupon interest paid to debt investors or prepaying part of the debt after the downgrade. Bhanot and Mello (2006) indicate that credit events such as the Tyco, Vivendi Universal have credit clauses in their covenants. Both creditors experienced downgrades that caused them to pay an extra of billions of dollars for their obligations. Bhanot and Mello (2006) use Leland's framework (1994), which focuses on the covenant with the rating trigger. Effects such as taxes, costs of default and asset substitution are presumed to be included.

When substituting assets, equity holders could alter the firm's risk profile. The equity infusion would subsidize the equity holders' wealth extracted from the debt holder. An optimized structure was considered to be closer to the optimized level. The result indicated that increment outflows would increase, and reduction in the firm's pre-determined payments.

In situations where increasing the coupon interest payments is similar to the increase in debts when asset values are low and moving further away from the optimum leverage level, increased coupon interest could also increase the chance of bankruptcy. The covenant clauses could relate to performances measured by debt-to-EBITDA, leverage and interest coverage. In particular, the debt trigger covenant would impact value maximization differently. When firm asset value decreases, the tax shield value decreases, while bankruptcy costs increase.

The default rate is a commonly used factor in structural models. It can be better explained by Elizalde's credit risk model (2003). Elizalde (2003) incorporates work by Merton (1974) and Black and Cox (1976) that involves the cyclical default correlation and the contagion effect. Black and Cox's (1976) First Passage Model (FPM) determines defaults when a firm's asset values hit a lower barrier and default could occur at any time.

Covitz and Han (2004) use the structural form approach to determine the firm's time of default, and the reduced/intensity approach to determine the default intensity from the jump process. Their approach is equivalent to referring to endogenous defaults generated within the model setting, as opposed to using exogenously defaults generated for the reduced form model.

3 The Data Collection Instrument – Questionnaire

Bond Covenant Impact on Valuation Study

This questionnaire is part of a PHD study being undertaken by Sean Chang of Macquarie Graduate School of Management into the impact of bond covenants on bond valuation in China, from the perspective of industry practitioners.

Your views will greatly contribute to the level and quality of the information being gathered. Please complete both parts of the questionnaire without discussion with colleagues.

Your responses and comments are strictly confidential. No responses or comments will be individually attributed in any published report and any comments used will be de-identified. Participation in the study is entirely voluntary. The questionnaire should take around 20 minutes to complete.

Please return the completed questionnaire to:

Chang Tat Sean

Thank you in advance for your participation.

Part I - Instructions

There will be a total of 16 scenarios provided, where each scenario will consist of a different combination of protection offered by bond covenants. Please consider each scenario independently.

The four different risk factors that bond covenant protects from are: Information asymmetry, financial distress, agency problems and bankruptcy.

- 1) **Information Asymmetry** –Refers to relevant information that is known to some people but not to all parties involved. In this survey, it refers to information relevant to proper valuation that is known to company insiders but not bondholders.
- 2) **Agency Problem** – Refers to the principal/agent problem or difficulties that arise due to conflicting interests when a principal hires an agent, such as the problems that can arise when bondholders face expropriation of their wealth through inappropriate decisions by the company's management acting to maximize the wealth of the shareholders.
- 3) **Financial Distress** - Corporate financial distress is a financial lexicon used to indicate the condition when promises to creditors of a company are broken or honored with difficulty
- 4) **Bankruptcy** – Bankruptcy refers to an exchange offer for delayed interest; missed coupons & forgiven principals; maturity extension; debt equity swap; haircuts and ultimately default from the bond investors' standpoint.

Each scenario will consist of a combination of the above-mentioned four types of bond covenants, where the protection provided by each will be indicated by "Better" or "Worse". "Better" means the bond is more protected against the risk that the covenant is set out to protect against relative to the seven of the last ten bonds you have analysed, while "Worse" means the bond is less protected against the risk the covenant is supposed to protect against relative to the seven of the last ten bonds you have analysed.

You will also be asked to rank the perceived relative value of the bond. A "substantially lower" perceived value means that you believe the bond to have lower value than a typical bond.

You will be asked to circle your perceived risk of these bonds based on its level of protection. "Substantially lower" means that you believe the bond have larger risk than a typical bond.

Example - A sample response to a case scenario

Information asymmetry protection	SAME						
Financial distress protection	SAME						
Agency problems protection	SAME						
Bankruptcy protection	SAME						
Assessment relative to typical debt (circle)							
	Substantially lower				Substantially higher		
Relative Value:	-3	-2	-1	same	1	2	3
Perceived Risk:	-3	-2	-1	same	1	2	3

Part I - The Exercise

Scenario 1

Information asymmetry protection	Better
Financial distress protection	Better
Agency problems protection	Better
Bankruptcy protection	Worse
Assessment relative to typical debt (circle)	
Substantially lower	Substantially higher
Relative Value:	-3 -2 -1 same 1 2 3
Perceived Risk:	-3 -2 -1 same 1 2 3

Scenario 5

Information asymmetry protection	Worse
Financial distress protection	Worse
Agency problems protection	Better
Bankruptcy protection	Worse
Assessment relative to typical debt (circle)	
Substantially lower	Substantially higher
Relative Value:	-3 -2 -1 same 1 2 3
Perceived Risk:	-3 -2 -1 same 1 2 3

Scenario 2

Information asymmetry protection	Better
Financial distress protection	Better
Agency problems protection	Worse
Bankruptcy protection	Worse
Assessment relative to typical debt (circle)	
Substantially lower	Substantially higher
Relative Value:	-3 -2 -1 same 1 2 3
Perceived Risk:	-3 -2 -1 same 1 2 3

Scenario 6

Information asymmetry protection	Better
Financial distress protection	Better
Agency problems protection	Better
Bankruptcy protection	Better
Assessment relative to typical debt (circle)	
Substantially lower	Substantially higher
Relative Value:	-3 -2 -1 same 1 2 3
Perceived Risk:	-3 -2 -1 same 1 2 3

Scenario 3

Information asymmetry protection	Worse
Financial distress protection	Better
Agency problems protection	Worse
Bankruptcy protection	Better
Assessment relative to typical debt (circle)	
Substantially lower	Substantially higher
Relative Value:	-3 -2 -1 same 1 2 3
Perceived Risk:	-3 -2 -1 same 1 2 3

Scenario 7

Information asymmetry protection	Worse
Financial distress protection	Worse
Agency problems protection	Worse
Bankruptcy protection	Worse
Assessment relative to typical debt (circle)	
Substantially lower	Substantially higher
Relative Value:	-3 -2 -1 same 1 2 3
Perceived Risk:	-3 -2 -1 same 1 2 3

Scenario 4

Information asymmetry protection	Better
Financial distress protection	Worse
Agency problems protection	Worse
Bankruptcy protection	Better
Assessment relative to typical debt (circle)	
Substantially lower	Substantially higher
Relative Value:	-3 -2 -1 same 1 2 3
Perceived Risk:	-3 -2 -1 same 1 2 3

Scenario 8

Information asymmetry protection	Worse
Financial distress protection	Worse
Agency problems protection	Better
Bankruptcy protection	Better
Assessment relative to typical debt (circle)	
Substantially lower	Substantially higher
Relative Value:	-3 -2 -1 same 1 2 3
Perceived Risk:	-3 -2 -1 same 1 2 3

Scenario 9										Scenario 13									
Information asymmetry protection					Better					Information asymmetry protection					Worse				
Financial distress protection					Worse					Financial distress protection					Better				
Agency problems protection					Better					Agency problems protection					Better				
Bankruptcy protection					Worse					Bankruptcy protection					Worse				
Assessment relative to typical debt (circle)										Assessment relative to typical debt (circle)									
Substantially lower					Substantially higher					Substantially lower					Substantially higher				
Relative Value:					-3 -2 -1 same 1 2 3					Relative Value:					-3 -2 -1 same 1 2 3				
Perceived Risk:					-3 -2 -1 same 1 2 3					Perceived Risk:					-3 -2 -1 same 1 2 3				
Scenario 10										Scenario 14									
Information asymmetry protection					Better					Information asymmetry protection					Worse				
Financial distress protection					Worse					Financial distress protection					Better				
Agency problems protection					Better					Agency problems protection					Better				
Bankruptcy protection					Better					Bankruptcy protection					Better				
Assessment relative to typical debt (circle)										Assessment relative to typical debt (circle)									
Substantially lower					Substantially higher					Substantially lower					Substantially higher				
Relative Value:					-3 -2 -1 same 1 2 3					Relative Value:					-3 -2 -1 same 1 2 3				
Perceived Risk:					-3 -2 -1 same 1 2 3					Perceived Risk:					-3 -2 -1 same 1 2 3				
Scenario 11										Scenario 15									
Information asymmetry protection					Better					Information asymmetry protection					Better				
Financial distress protection					Better					Financial distress protection					Worse				
Agency problems protection					Worse					Agency problems protection					Worse				
Bankruptcy protection					Better					Bankruptcy protection					Worse				
Assessment relative to typical debt (circle)										Assessment relative to typical debt (circle)									
Substantially lower					Substantially higher					Substantially lower					Substantially higher				
Relative Value:					-3 -2 -1 same 1 2 3					Relative Value:					-3 -2 -1 same 1 2 3				
Perceived Risk:					-3 -2 -1 same 1 2 3					Perceived Risk:					-3 -2 -1 same 1 2 3				
Scenario 12										Scenario 16									
Information asymmetry protection					Worse					Information asymmetry protection					Worse				
Financial distress protection					Worse					Financial distress protection					Better				
Agency problems protection					Worse					Agency problems protection					Worse				
Bankruptcy protection					Better					Bankruptcy protection					Worse				
Assessment relative to typical debt (circle)										Assessment relative to typical debt (circle)									
Substantially lower					Substantially higher					Substantially lower					Substantially higher				
Relative Value:					-3 -2 -1 same 1 2 3					Relative Value:					-3 -2 -1 same 1 2 3				
Perceived Risk:					-3 -2 -1 same 1 2 3					Perceived Risk:					-3 -2 -1 same 1 2 3				

Part II

1. Please describe your experience in analyzing bond covenants and state the years of experience you have had valuing/analyzing covenant protection

2. How important are bond covenants with regard to your valuation approach. Please explain.

Unimportant 1 2 3 4 5 6 7 8 9 Important

3. How useful do you think bond covenants are in compensating for the shortcomings of the regulatory system?

Not useful 1 2 3 4 5 6 7 8 9 Very useful

4. For covenant protections against information asymmetry, agency theory, financial distress and bankruptcy, which do you think would have the greatest effect on spread? Why?

5. Please rank the top three most significant covenants. (tick box)

- ☐ Negative Pledge
- ☐ Change of Control
- ☐ Limit of Indebtedness
- ☐ Cross Default Negative Covenant
- ☐ Certain Sales of Assets
- ☐ Restriction of Activities
- ☐ Debt Service Coverage Ratio FCF to Debt Service Ratio
- ☐ Restrictive Covenant
- ☐ Merger Restrictions Limitation on Sale & Leaseback
- ☐ Limitation on subsidiary Debt
- ☐ Restricted Payments
- ☐ Ratings Trigger
- ☐ Collective Action Clause
- ☐ Material Adverse Change Clause
- ☐ Force Majeure
- ☐ Others _____

6. Please indicate the relative importance of the four variables on your judgment. (i.e. each column should add up to 100)

	Relative Value	Perceived Risk
Agency Theory	_____	_____
Information Asymmetry	_____	_____
Financial Distress	_____	_____
Bankruptcy	_____	_____
	100	100

7. Please specify any information that would be needed to make a decision differently.

Thank you for your input!

4 The Interview Protocol

Interview Protocol for In-depth Interview

A. Introduction

Thank

Deliver an introduction on the purpose and content of the in-depth interview.

Deliver a brief introduction to the value of the subject's contribution.

B. Background information

Ask for the experience and background of the participants in dealing with debt covenants and valuations

Ask for their impression of the role of debt covenants in valuation

C. In-depth interview questions

C.I) Impact of covenants on valuation

Do bond covenants provide investors with added protection that requires extra compensation, why?

How do you assess protection from covenants?

C. II) Impact of covenant risk factors on valuation

How important is the inclusion of a bond covenant regarding information asymmetry on valuation?

How important is the inclusion of a bond covenant regarding agency problems on valuation?

How important is the inclusion of a bond covenant regarding financial distress on valuation?

How important is the inclusion of a bond covenant regarding bankruptcy on valuation?

How does a covenant protect against information asymmetry? How does it impact valuation?

How does a covenant protect against agency problems? How does it impact valuation?

How does a covenant protect against financial distress? How does it impact valuation?

How does a covenant protect against financial distress? How does it impact valuation?

How does a covenant protect against bankruptcy? How does it impact valuation?

C. III) Interactive effects of covenants on valuation

Do you think a bond with more covenants is more attractive than one with less covenants?

Would you perceive added covenant restrictions as a risk?

C.IV) Implications of covenants in an Asian context

How effective do you think covenants in China are at minimizing credit spreads?

How do you think debt valuation using covenants differ in an Asian context from that of a US context?

D. Conclude and Summarize

Thank

Pages 308-309 removed from Open Access version as they may contain sensitive/confidential content.