Review on Corporate Bond Research

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Abstract—The paper analyzes literatures on Chinese corporate bond research in China, mainly on several points below: firstly, comparative study on Chinese corporate bond and American corporate bond; secondly, research on credit spread of corporate bond; thirdly, research on liquidity risk of corporate bond and risk management; fourthly, research on structuring pricing model of corporate bond; in the end, research on term structure of interest rates of corporate bond. There are some researches on yield spread to maturity of corporate bond in China, but, I find that there are few research on taxes effect of yield spread to maturity of corporate bond.

Keywords—corporate bond; yield spread; term structure of interest rates

I. INTRODUCTION

In China, there are three different supervisors of corporate bond, and the first is NDRC (National Development and Reform Commission). According to “Corporate bond control regulations” which is formulated by the State Council and notifications issued by NDRC, it governs issuance of state owned enterprises, which including central enterprises and enterprises invested or guaranteed by state government. The enterprises collect money to the national key construction projects or local infrastructure construction, such as highway, railway, hospitals, schools and city infrastructure construction, and so on. In 1985, Shenyang real estate development Co., LTD issued the first corporate bond in China.

The second supervisor is CSRC (China Securities Regulatory Commission), and it is in charge of examining and approving public companies, and the money collected is used for reinvestment and purchase fixed assets. In August 2007, CSRC formulated “Corporate bond to distribute Experiment site Means” according to reformulated “Securities Law” and “Company Act”, and the corporate bond market in Stock Exchange begins.

The third supervisor is the Chinese inter-bank market dealers association which is governed by People’s Bank of China and it mainly does non-financial business financing, and the business could decide itself about how to use the collected money. Financing vehicles are also known as interim bills. In April 2008, according to “Non-financial business debt financing tool management approach of the Market of bond among the bank”, the Chinese inter-bank market dealers association examines and approves issuance of corporate bond of non-financial business. [1]

In China, literatures on corporate bond researches are mainly about: comparative study on Chinese corporate bond and American corporate bond; research on credit spread of corporate bond; research on liquidity risk of corporate bond and risk management; research on structural pricing model of corporate bond; research on term structure of interest rates of corporate bond.

II. REVIEW OF COMPARATIVE STUDY ON CHINESE CORPORATE BOND AND AMERICAN CORPORATE BOND

Gao Xiaoqiang analyzed the differences of Chinese security market and American security market from six aspects, such as the kinds and term of securities, issuance bodies, investors, markets, credit ratings and management systems. [2] US has well developed corporate bond markets, and it has various securities, including mortgage bonds, debenture bonds, convertible bonds, with the authentication of equity securities, redeemable bond, floating rate bond and high yield bonds. While in China, there are a few kinds of corporate bonds, and we don’t have high yield bonds till now.

The issuance bodies in US includes large scale companies with good credit, and this kind of corporates issue credit bonds, and some small companies issue high yield bonds to solve the problem of shortage of funds, and boost the economic development in US. In China, the issuance bodies are huge state owned enterprises, the local government guarantee company, and big public companies, and these companies have good credit and issue credit bonds, but small companies hardly could issue bonds to collect money. This restricts development of small companies and it’s bad for economic development in China[10-13].

On the aspect of investors, corporate bond investors in US are banks, insurance companies, pension funds, saving institutions and other kinds of institutions and personal investors is 5% of all. In China, the investors of corporate bond are commercial banks, insurance companies, fund corporates and security companies, etc. We don’t use pension funds to invest in corporate bonds yet[13-16].

On the aspect of market services, American bond market is well developed, all the bonds are issued publicly, and mainly by means of OTC exchange. In China, bond markets include interbank bond market and stock exchange. Interbank bond market adopts internal exchange, and it’s the main exchange method of corporate bond[16-21].

On the aspect of credit rating, credit rating in US has developed for a century, and it’s perfect. Rating agencies are independent, authoritative, such as Moody, Standard...
and Poor's, and so on, and they provide investors with
good directions. In China, rating agencies are small, de-
dependent on government and recusant, and also rating nar-
row range[21-25].

On the aspect of management system, Federal gov-
ernment of the United States, States, The Securities Indus-
try Association formulate relevant law and regulations,
including “Federal Securities Act”, “Securities Exchange
Act”, “Investment Company Act”, “Investment Adviser
Act” , “insider trading Act”, “The government securi-
ties law”, “Trust contract law”, “Securities Investor Pro-
tection Act” and “Bank Holding Company Act” etc. Law
and regulations on bond in China are increasingly im-
proved, but still need to be further perfected[26-30].

III. REVIEW ON CORPORATE BOND CREDIT SPREAD
RESEARCH

Credit spread means that corporate bond and treasury
bond have the same residual maturity and cash flow, and
the yield to maturity of corporate minus the yield to ma-
turity of treasury bond[31]. The reason that credit spread
exists is that a higher default risk of corporate bond, and
when invest corporate bond, investors expect higher yield
to maturity to make up for risks. Zhang Ran take corp o-
rate bond as research subject, and in the assumption of no
arbitrage he inferred the relation between credit spread
and economy development.[4] He used bond market data
and data of consumption, investment, production, export
to examine the model, and found the ability of credit
spread of corporate bond to forecast and explain macro-
economy. The results show that credit spread could per-
fectedly predict and explain consumption, export, invest-
ment, Industrial value increases and inflation. And credit
spread could provide better macro-economy information
than term of interest rate.

Sun Ke applied GARCH model to find the macro and
micro factors of corporate bond credit spread with differ-
ent terms, and curvature, slope of curve of treasury bond
yield, inflation rate and exchange rate have important
effect on corporate bond credit spread. [3] The results
show that there is negative relation between corporate
bond credit spread and short term interest rate. On the
other hand, stock market has important effect on corpo-
rate bond credit spread, when the stock market is partial
hot, bond demand would decrease, and credit spread
would increase. Also, exchange rate has effect on corpo-
rate bond credit spread, and when RMB appreciates, ex-
port decreases, income decreases, corporate bond default
risk increases, and credit spread increases.

Liu Guoguang researched on the relation between
public corporate bond credit spread of Shenzhen and
Shanghai stock market and treasury bond yield, and found
that they have significant co-integration relationship, and
there is a long-term equilibrium relationship. [5]

IV. RESEARCH ON LIQUIDITY RISK OF CORPORATE BOND
AND RISK MANAGEMENT

Hong Baozhen built five factors model which includes
turnover rate, slope, credit, bond credit rating and matur-
ty, and analyzed recent data from Shenzhen and Shanghai
stock exchange, and analyzed different corporate bond
liquidity premium. [6] And the results show that the
stronger the liquidity, the smaller the liquidity risk premi-
un. Corporate bond liquidity differences in China are
small.

Investment to corporate bond has some risks, accord-
ing to risk diversification theory, the bond portfolio yield
is a weighted average of bond yields. There are several
methods to effectively avoid risk and maximize the yields.
Firstly, terms scattered method, that is invest to different
maturities corporate bonds. Secondly, regional scattered
method, that is invest to different corporates in different
areas, and decrease the risk of economy recession of some
districts. Thirdly, industry scattered method, invest to
different industry, because some industry’s corporate
bond spread would decrease as the natural conditions and
consumer demands changes, etc.

V. RESEARCH ON STRUCTURING PRICING MODEL OF
CORPORATE BOND

Liu Weijing corporate bond pricing problems in the
condition that corporate debt obeys continuous diffusion
process, on the basis of corporate asset valuation obey the
double exponential jump diffusion process. [7] First of all,
giving the corporate bond pricing analytic solutions based
on zero coupon bonds by means of unit pricing method on
the simple condition. Then, giving default probability of
corporate bond pricing problem on common condition,
and discuss term structure of credit spread. The empirical
analysis show that the model could fit actual situation
well.

Zhou Xiaokun used structured pricing model for em-
pirical analysis of bond market in US and China, and
found that the spread from the model is far smaller than
the real spread. [8] There are two possible reasons, on the
one hand, using the pay date of bond interest which has
certain maturity date to substitute zero coupon bond in
Merton model and perpetual bond in Leland model. On
the other hand, Structural Models are based on claim the-
ory, because he only considered default risk and ignored
other factors that have effect on the bond spread, so he
underestimate market spread. And he didn’t consider li-
quidity, taxes and system risks.

VI. RESEARCH ON TERM STRUCTURE OF INTEREST RATES
OF CORPORATE BOND

Gao Yijie found that corporate bond yield in China
complied with the term structure of interest rates expecta-
tions theory in some extent by empirical analysis. [9]
There is a long-term equilibrium relationship between
long-term interest rates and short-term interest rates. But
the expected transmission effects among different term
structures are not strong, and this reflects that the corp o-
rate bond markets in China are not perfect, and there is
quite severe short-term speculation.

VII. REVIEW

Literatures on corporate bond research are in five di-
rections: comparative study on Chinese corporate bond
and American corporate bond; research on credit spread
of corporate bond; research on liquidity risk of corporate bond and risk management; research on structuring pricing model of corporate bond; in the end, research on term structure of interest rates of corporate bond.

These researches made great achievements, but also have some lacks. There are few researches on taxes effect on corporate bonds. According to scholars, the reasons of spread of yield to maturity between corporate bonds and treasury bonds are credit risk, default risk and system risks, etc. But they ignore state taxes and national taxes and it’s a most important factor, and we need further research on it.

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